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This two volume, 399-item bibliography with English abstracts of books and articles largely from 1967 and 1968 on various aspects of Indian education includes sections on the Indian "brain drain" and on examination and evaluation. Emphasis is placed on sections dealing with educational psychology, policy and planning, teacher education, tests and measurements, vocational and technical education, course study, general education, and programed instruction. Less extensive sections deal with: (1) educational administration, organization, curriculum, research, sociology, finance, materials and aids, statistics, waste and stagnation; (2) adult, general, elementary, moral, physical, preschool, science, women's and workers' education; and (3) academic achievement, correspondence courses, guidance and counseling, health care, history, literacy, types of schools, student discipline, student selection, student welfare, teachers, and teacher organization. A list of abstracted periodicals and newspapers is included. For a companion document see ED 025 973. (RL)

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ACADEMIC ACHIEVEMENT

328 **AHLUWALIA S P, GUPTA H C:** Study of relationship between some environmental factors and academic achievement. Proceedings of the Indian Science Congress. Pt.3. Abstracts 1968, 55, 681.

The environmental factors include parents' education, their occupational status, socio-economic level, and caste status. Hindi version of Jalota's group test of mental ability was administered to pupils of class VIII and three groups (high, moderate and low) were formed on the basis of intelligence. Each group was further divided into two sub-groups (high achievers and low achievers) on the basis of academic achievement. A personal-data questionnaire was used to collect necessary information about the subjects and environment. The collected data were analysed with the application of chi-square techniques and the results were tested for statistical significance. The findings are: 1) high caste students were usually high achievers; 2) significant relationship exists between fathers' occupation and education, and academic achievement of the boys; 3) provision for study facilities at home proved to be an important factor in the school performance; 4) the places of distraction in the neighbourhood seem to have no significant relationship with the scholastic achievement.

329 **CENTRE OF ADVANCED STUDY IN EDUCATION, BARODA:** Investigation into the academic causes of backwardness in social studies at the elementary stage, classes I-VII. Baroda, the Centre, 1966. 109p. 20 ref. (Studies in Scholastic Underachievement).

Part 1 of the report consists of the findings and suggestions of the study based on an elaborate questionnaire sent to 1,000 primary schools of Gujarat. Part 2 presents 25 selected case studies of educationally backward pupils of the Baroda Municipal schools, whose intelligence was normal (IQ 85 to 110) but whose academic achievement was rated below average. The objectives of the investigation were to: 1) study the factors causing low achievement of normal pupils; 2) ascertain the views of teachers and headmasters on the problem; 3) assess the existing position of social studies teaching; 4) elicit suggestions from teachers to improve the teaching of the subject; 5) prepare remedial programme or material for underachievers; 6) improve courses, textbooks, teaching methods, evaluation scheme, and school administration with a view to help underachievers. The analysis of data has been presented under the following headings: identifying data, curriculum, teaching material, teachers and methods, scheme of evaluation, and school administration. Causes of underachievement are related to: 1) curriculum; 2) teaching material; 3) teachers and methods of teaching; 4) school administration; 5) examination system.

330 MEHTA P: Achievement motivation training for educational development. Indian Educational Review 1968, 3(1), 46-74. 19 ref.

The study was aimed at testing the effect of two motivation training programmes: one designed to increase the concern to achieve and the other to boost aspirations for academic performance. Teachers trained in programmes designed to increase their concern to achieve were used as agents for similarly designed changes in their pupils. The programmes designed for pupils (290 class IX boys of 5 schools in Jaipur offering science group of subjects) were carried out in the specified manner in the respective classroomsby teachers who were trained earlier for this purpose. The experimenters had little direct contact with the subjects who operated in the classroom through the teachers. The programmes for students lasted 4 months with one pre-test and two post-tests. The results indicated that: 1) teaching achievement motivation characteristics along with goal-setting in the classroom enabled the bright under-achievers (low socio-economic status) to improve their performance at the annual examination which closely followed the experimental programmes; 2) teaching of characteristics of persons with high achievement can produce improvement in the academic performance of under-achieving school boys; 3) this can be done by means of a regular classroom programme by teachers trained in achievement motivation; 4) combined programme of achievement motivation and goal-setting was more effective than a mere goal-setting programme; 5) the impact of a classroom motivation programme is more likely to be felt later rather than immediately after the programme.

ADMINISTRATION AND ORGANIZATION

331 Educational administration in India - articles by 16 educationists. Education Quarterly 1967, 19(3), 1-53.

The introductory article of Suraj Bhan outlines the role of an educational administrator for the realization of the national ideals of a sovereign democratic and welfare state. He disfavours treating educational administration as a kind of general administration and considers it a specialist's job. Next 5 articles deal with university administration with special stress on autonomy. K.L. Shrimali feels that it is possible to evolve workable arrangement of implementing government policy without infringing university autonomy. D.C. Verma discusses three aspects of university autonomy, viz. autonomy within the university, autonomy in university system, and university autonomy vis-a-vis government. S. Mathai outlines some of the day-to-day problems of the university administrator and suggests some urgent reforms. K.C. Naik gives some practical suggestions for good administration. D.M. Desai traces the changing trends in the role of the government and private agencies in the administration of higher education since independence and pleads for closer relationship between government, universities, UGC and similar bodies in the field of technical, agricultural, and medical education. Next 2 articles deal with National Staff College for Educational Administrators. V. Jagannadhamurges the utilization of the existing resources in the Indian Institute of Public Administration, Asian Institute for Educational Planning and Administration and the National Council of Educational Research and Training for the training of educational administrators. S.N. Mukerji presents a programme (along with the outline of the courses) for the establishment of a separate National Staff College. The next group of 3 articles by H. Banerji, D.C. Sharma and S.S. Boyce is on the portrait of an ideal educational administrator. A.K. Sarkar has attempted to identify the nature of the demand that an educational administrator has to answer if education has to play its part in the realization of the ideals to which the society is committed. S. Shukla is of the opinion that considering the significant proportion of GNP invested in education, it should be subjected to the principles of profitability. Further, educational administrators should develop innovation from within or diffuse it from above. D.V. Chickermane reviews the stages through which decentralization of primary education has passed in the old Bombay State during the last 40 years. The last two articles by K.G. Desai and V.S. Vanikar discuss the factors that lead to the establishment of unrecognized institutions. These institutions exist because recognized schools are weak. Improvement of the recognized schools would prevent the growth of unrecognized institutions.

332 KRISHNAMURTY S: Professional education of educational administrators. Teacher Education 1968, 2(2), 17-23. 8 ref.

The existing drawbacks in the educational administrative system as well as in the selection and training of personnel have been pointed out. The new concepts such as 'social statesmanship', 'democratic administration' and 'group dynamics' and the varied roles of educational administrators, make professional education for the educational administrators imperative. The training should develop professional competence, inculcate professional ethics, improve human factor, provide knowledge of behavioural science and cultivate democratic values. Both theoretical and practical aspects should be covered by the training. Theoretical part should include philosophical, sociological and psychological foundations of education, educational planning and finance, educational administration in general and in relation to India in particular, comparative educational administration, research methodology, educational rules and codes, accounting and auditing, etc. One year's internship should be compulsory, during which period practical aspects of educational survey, inspection, etc. should be covered. The establishment of a National Institute of Educational Administration for imparting the training has been suggested. However, at the State level training can be provided by the State Institutes of Education under the guidance of the National Council of Educational Research and Training.

333 SARWAN KUMAR: Decentralization of educational administration. Haryana Journal of Education 1968, 1(1), 54-8.

Decentralization of educational administration has been advocated on the following grounds: 1) the expanding school system demands that decision-making and responsibility should be as close to the point of actual operation as possible to run it efficiently; 2) effective utilization of specialized staff of the complex educational enterprise requires decentralization both for supervision and operation; 3) motivating individual competency can be achieved only through respecting and harnessing imagination and leadership at the intermediate and lower levels; 4) decentralization brought to the level of teachers would make them involved in the decision-making process and remove their frustration. The implications of decentralization are most conspicuous at two levels: 1) district level involving the district educational officer; and 2) school level involving headmaster. Personnel at these levels should be properly oriented to the concepts of decentralized administration.

ADULT EDUCATION

334 ASIAN INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION, New Delhi: Planning functional literacy in Asia - a handbook of suggestions. New Delhi, the Institute, 1968. 69p.

After taking preliminary decisions regarding nature of courses, classes of people to be educated first, number and types of classes to be held, plans have to be drawn up for: 1) selection and training of instructors; 2) establishment of a corps of inspectors or supervisors; 3) meeting places for the groups; 4) provision of reading materials and their distribution;

5) provision of teaching aids; 6) use of mass media; 7) provision of continuing education; 8) co-ordination of all agencies involved in the programme; 9) publicity and public relations; 10) evaluation. Programmes in relation to the following specific development projects have also been discussed: 1) intensive agriculture development programme; 2) large scale irrigation schemes involving the settlement of new farmers; 3) plantations and other large-scale agricultural enterprises; 4) animal husbandry schemes; 5) industrial development programmes; 6) nutritional education programmes; 7) rural development programmes. The following suggestions have been made for the administration of the plan: 1) a Literacy Planning Unit attached to the Planning Commission should advise the inter-ministerial committee dealing with functional literacy programmes; 2) a National Council of Adult Education would also advise the committee; 3) the Adult Education Department of the Ministry of Education should co-ordinate all activities; 4) a distinction should be made between recurring and non-recurring costs and also the exclusive cost of functional literacy and costs incurred by other departments; 5) other ministries concerned with adult education should also finance the programmes; 6) at least 1% of G.N.P. should be spent on adult education and 5-10% of the budget of the Education Ministry should be allocated to adult education; 6) regional cooperation should be encouraged.

335 MULAY S: University and professional development of adult education. Indian Journal of Adult Education 1968, 29(2), 2-3.

An integrated approach of research, teaching and field work has been suggested for adoption by universities for promoting professional leadership in adult education: 1) Research: researches should be undertaken to build up adult education as an academic discipline and also to enrich the knowledge and proficiency of adult educators for enabling them to achieve their goals by the most effective methods; 2) Teaching: the teaching of adult educators should have an interdisciplinary approach and so the teaching curriculum should include not only the body of knowledge of adult education and the education process, but also courses in other disciplines, such as sociology, cultural anthropology and psychology. Besides the basic knowledge of these behavioural sciences, the teaching programme should include a thorough knowledge regarding audio-visual aids and communication process; 3) Training in field work: Community Development Blocks should be attached to universities for research, experimentation and practical training of adult educators. Universities should undertake action programmes, such as conducting literary classes, or organizing youth or women's activities and should involve the student adult educator.

BASIC EDUCATION

336 ACHARLU K S: Basic education - a retrospect. Quest in Education 1968, 5(1), 508-20, 501.

Presents a summary of the recommendations of the following Commissions and Committees appointed by the Government of India to examine the principles and programmes of basic education: 1) Post-war educational development in India - report by the Central Advisory Board of Education (1944) /Sargent Report/; 2) Committee of the Central Advisory Board of Education to consider the Wardha Scheme of Education (1938); 3) Second Wardha Education Committee of the Central Advisory Board of Education (1939); 4) University Education Commission (1948-49).

337 RUHELA S P: Basic education. (In UDAY SHANKAR, AHLUWALIA S P, Eds. Development of education in India. 1947-1966. Kurukshetra (Haryana), Kurukshetra University, Department of Education, 1967. 23-35. 11 ref.

Although apparently there has been a significant development of basic education in the post-independence era, a careful analysis shows that the system which is an important socio-cultural institution has been subjected to the sociological concept of 'cultural lag'. Thus, while there has been impressive progress of the material, physical or tangible aspects of basic education, the intangible aspects like ideals, values, faith, sincerity and attitudes have lagged far behind. The following causes have been mentioned: 1) poor quality of the first generation of educational administrators in basic education; 2) administrative weakness and large scale migration of urban youth disinterested in working as basic school teachers in villages; 3) lack of adequate provision for vertical mobility of teaching staff; 4) development of snobbish attitude in upper and middle classes due to their growing economic prosperity and rising achievement motive; 5) hackneyed and parochial attitudes and practices adopted in the field of basic education; 6) introduction of methods without any trial.

338 SHRIMALI K L: Future of basic education. Chandigarh, Publication Bureau, Panjab University, 1966. 63p.

The social and political background which led to the development of the concept of basic education has been described and the salient features of the system as propounded by Gandhi have been presented. The failure of the system has been attributed to the following causes: 1) continuation of English as the predominant language. Basic schools which teach only Hindi cannot obviously be popular; 2) the system of correlation has been reduced to such absurdity that even poetry and mathematics are correlated with crafts; 3) students passing out of basic schools are not admitted to the university unless they pass the Secondary Board Examination; 4) the State Educational Departments did not implement the programme properly; 5) the system was introduced only in rural areas, while urban areas continued to have the conventional system; 6) doctrinaire approach on the part of the disciples of Gandhi prevented any modification of the scheme on the basis of practical experience. Productive labour, education through the mother tongue, and secularism - the three basic principles of socialist education - are incorporated in the programme of basic education. It has been stressed that a realistic and unbiased approach to the problems of Indian education would reveal that fundamentals of basic education serve the needs of socialistic society. Revitalizing Indian education, therefore, demands the working of Gandhian concept with greater zeal and faith.

COURSES OF STUDY (HIGHER EDUCATION)

339 CHERIAN A: Nursing - education and opportunities. Swasth Hind 1968, 12(3-4), 139-41.

With the increasing number of schools of nursing, the two important principles of nursing education - an independent budget, and student status for student nurses - are being violated. Hospitals start nursing schools primarily to utilize the services of student nurses and thus the cause of nursing education suffers. Considering the present functions of nurses, nursing education should be developed along the lines of medical education and practice. An understanding of the basic sciences, both physical and biological, is also necessary. A survey of the development of nursing education in India reveals that education is provided through 8 university colleges and 247 schools of nursing. The annual output is about 5,000 nurses from schools and 70 from colleges. Besides, there are schools for training the auxiliary nurse-midwife and health visitor. Every qualified nurse has opportunities for clinical specialization. Delhi University offers master of nursing degree. The Indian Nursing Council is responsible for working out uniform standard of nursing education in the country.

340 GARG R K: Five-year integrated course - a reappraisal. Journal of the Institution of Engineers (India) - General Engineering 1968, 48(5), 107-10.

Discusses the problems created by the change-over to five-year integrated degree courses in engineering and expansion of engineering education. The problems isolated are: 1) increase in number of students; 2) disproportionate growth of non-engineering departments in engineering colleges; 3) admission of comparatively immature students whose choice has not necessarily been guided by aptitude. The following suggestions have been made: 1) division of the five-year course into two independent courses: (a) a pre-engineering course of two years' duration to provide general education with particular reference to engineering, to be followed by (b) a three-year purely professional engineering course; 2) allowing a student to opt out to the general line after the pre-engineering stage. The pre-engineering course should, therefore, be considered as equivalent to B.Sc. Part I; 3) readjustment of the curriculum by transferring non-engineering subjects like physics, chemistry, mathematics and humanities to the non-engineering course; 4) transferring the pre-engineering course to a general science college; 5) selecting the branch in engineering on completion of the pre-engineering course, mainly on the basis of performance in the examination.

341 GUPTA A K, MALIK S R K: Factors influencing the development of medical curriculum. Indian Journal of Medical Education 1968, 7(1-2), 123-5.

The aims and objectives of a well-balanced medical curriculum are: 1) development of medical knowledge and creative thinking; 2) stimulation of self-learning process; and 3) development of wholesome personality commensurate with medical ethics. The following factors influence the development of under-graduate medical curriculum: 1) major health problems facing the country; 2) curriculum should not only be evolved on the basis of modern developments but should also consider the economic factor. For a long time it may not be possible to acquire sophisticated medical equipment; 3) due emphasis on industrial medicine; 4) social and allied factors - doctors should cultivate social values like selfless service, patience, kindness and generosity etc. and should consider the adverse living conditions of the masses who are illiterate and poverty-striken; 5) personal and political factors should not influence the curriculum; 6) rational student-teacher ratio.

342 GAUTAM O P: International cooperation in agricultural education. Journal of the I.A.R.I. Postgraduate School 1967, 5(2), 205-11.

An assessment of the various cooperation programmes between India and different countries and agencies shows that considerable scope exists to improve the planning, programming and o operation in respect of technical assistance, participation training programme, joint training programme, equipment and library, and general operational efficiency. Some suggestions have been given in these matters. Cooperation among the developing countries, specially those in South East Asian region, has been stressed on the following grounds: 1) similarity in problems of agricultural education and research; 2) regional character of the problems; 3) similarity in the social and cultural background. Such regional cooperation can take the following forms: 1) exchange of students, experts and personnel; 2) holding symposia and seminars; 3) creation of regional research, training and development centres; 4) other cooperative measures between universities. Programme of international cooperation established through normal Government agreements would eventually lead to meaningful working relationship between scientists and teachers, between departments and schools, and between universities and professional groups in the cooperating countries.

343 JOHRI B M: Botanical teaching and research in India. Journal of the Indian Botanical Society 1967, 46(2-3), 127-35.

While making a brief survey the following suggestions are made: 1) biology teaching should be compulsory at the school level; 2) a high standard of teaching and research should be achieved and maintained in postgraduate colleges; 3) syllabi should be modernized and combinations with biochemistry, biophysics, statistics and other related subjects should be introduced; 4) examinations should be thoroughly overhauled and frequent internal oral and written tests should be introduced; 5) the training of research students should be broad-based so that they may become successful teachers and investigators; 6) facilities for teachers and research students to work in other laboratories should be extended further; 7) extension lectures by experts in various fields should be arranged frequently; 8) there should be increased international cooperation in exchange of teachers; 9) research programmes should be oriented to practical problems; 10) procedures for sending students abroad for higher studies should be rationalized; 11) the proposed National Biological Laboratory [proposal since dropped] should be located near a well-established university and care should be taken to avoid duplication of research.

344 RAY A: Education of packaging technologists in India. Indian Food Packer 1968, 22(1), 39-44.

Packaging education should be interdisciplinary in nature. The Indian Institute of Packaging aims at providing a base for close collaboration between teachers of basic scientific and technological disciplines concerning packaging and industrial personnel so as to develop a full-time faculty capable of providing an intensive and comprehensive education. The Institute plans to hold intensive full-time three-month courses followed by a dissertation and examination. The following is the draft syllabus:

A 1) general concepts; 2) packaging protection; 3) package components; 4) protection from handling and transport hazards. B 1) packaging characteristics of the product; 2) packaging materials; 3) rigid containers; 4) materials for bulk packaging. C Auxiliary items in packaging - 1) adhesives; 2) cushioning materials; 3) re-inforcement methods; 5) seals, closures, opening devices, lining compounds and lacquers. D 1) testing and evaluation; 2) bulk packs. E Modern methods of packaging. F. Speciality in packaging of products; convenience of packaging. G storage of packaged products. H 1) handling and transport methods. I standards in packaging. J quality control. K packaging machinery. L packaging economics. M marketing. N layout of packaging factory. O role of the packaging technologist. P research. Q design and development testing.

345 **SETH S C:** Public administration should be part of education. Yojana 1968, 11(2), 21-2.

In view of the importance of public administration, a plea has been made for establishing public administration faculties in Indian universities. Experience of Western countries shows that better training can be provided by research instituions and universities rather than by the Government. One of the functions of the faculties would be the dissemination of new knowledge in administration to all administrative organizations. A programme of education in public administration calls for the following steps: 1) a general assessment of manpower and training needs of the administration at all levels; 2) examination of potential output of universities and institutions; 3) strengthening the faculties of public administration and adult education and extra-mural faculties of different universities and making their services more beneficial to Indian administration; 4) provision for the necessary literature; and 5) keeping in touch with developments in other countries.

346 **SRIVASTAVA G P:** Falling standard of pharmaceutical education. Indian Journal of Hospital Pharmacy 1968, 5(1), 21-4. Eastern Pharmacist 1968, 11(121), 17-21.

The causes of low standard of pharmaceutical education and its further deterioration have been traced in the attitude of teachers towards duty and quest for knowledge and also in their relationship with other teachers and students. The problem of student indiscipline and the controversy on the examination system have been discussed. It has been contended that appointment of heads of institutions possessing a higher sense of dedication to service, integrity, sincerity and courage of conviction and also the selection of right type of teacher would solve these problems to a great extent. Indiscriminate expansion of pharmaceutical education has been opposed and it has been stressed that the expansion should be related to the demands of the industry and the personnel requirements of research and teaching institutions. Consolidation of the existing institutions instead of expansion has, therefore, been favoured.

347 SRIVASTAVA T N: Research and education at Forest Research Institute and Colleges, Dehra Dun. Indian Forester 1968, 94(1), 5-12.

Presents a brief history of the complex consisting of five units: the Forest Research Institute, the Indian Forest College, the Northern Forest Rangers' College (all at Dehra Dun), the Southern Forest Rangers' College and Research Centre (Coimbatore) and the Regional Research Centre (Bangalore). The organization is divided into four Directorates: 1) Forest Research comprising silviculture and logging branches; 2) Biological Research comprising: i) wood preservation; ii) botany; iii) wood anatomy; iv) iv) entomology; v) forest pathology; and vi) minor forest products branches; 3) Forest Products Research, comprising i) timber engineering, ii) timber mechanics; iii) composite wood; iv) cellulose and paper; v) wood seasoning; and vi) chemsistry of forest products branches; 4) Forest Education comprises: i) Indian Forest College for the training of probationers for the State Forest Services leading to Diploma, and ii) the Northern and iii) the Southern Forest Rangers' colleges for training Forest Rangers leading to certificate. Both the courses are of two years' duration and candidates are sponsored by State governments. Foreign students are also admitted. The Indian Forest College would also train the probationers of the recently revived Indian Forest service. Refresher courses of 6 months' duration are conducted for Forest Department officers. Besides, the following courses of varying duration are also available: 1) Seasoning and preservation; 2) Timber Engineering; 3) Cellulose and Paper; 4) Composite Wood; 5) Silviculture and Statistics and 6) Timber identification.

CURRICULUM

348 JOSHI A C: Reform in science curriculum. (Presidential address at the 12th Session of the All-India Science Teachers' Association, Gauhati, 26 December 1967). Vigyan Shikshak 1968, 12(1), 4-9.

The need for continuous review of curriculum has been discussed. The science curriculum at elementary stage should aim at: 1) developing an understanding of the physical and social environments and the forces and causes governing various natural phenomena; 2) training students in accurate observation and problem-solving techniques of science and creating interest in the students for science subjects through stories, lives of great scientists, etc; 3) improving agricultural practices, nutrition, hygiene and health and understanding of scientific principles and major scientific discoveries through films. The following suggestions have been made for improving the science programmes at the secondary stage: 1) compulsory study of general science in all schools; 2) making elective science as a subject at least in one school in every town; 3) organizing a library of recent scientific books and standard scientific journals in all the schools. The various programmes for strengthening the supply and training of science teachers have been outlined.

349 LULLA B P: Model syllabus in social studies for primary and secondary schools of India. Social Studies Teacher 1967-68, 4(3-4), 39-50. 6 ref.

A model syllabus in Social Studies to be covered in two stages (stage I for classes I-VII and stage II for classes VIII to X) has been presented. The outline of the course at stage I covers topics related to life at home, school, community and world. The scheme for classes VIII to X has been prepared as a superstructure on the outline for classes I to VII. Emphasis has been laid on the social, cultural, political and economic aspects of human life in India and in the world at large. The major themes of the syllabi for both the stages are: 1) individual, family and school; 2) neighbourhood and community (village, town or city); 3) district and state; 4) India; 5) India and the Eastern countries; 6) India and the Western countries; 7) India and the world; 8) living in India (historical background, social and cultural heritage); 9) living in modern India (geographical, commercial and political aspects); 10) living in contemporary India and the world.

350 MAJUMDER H B: Work-experience - an analysis of the issues involved. NIE Journal 1968, 2(3), 10-15.

The major issues have been analysed in the light of the recommendations of the Education Commission: 1) whether the programme of work-experience oriented to an industrialized society based on science and technology would meet the social aspect of productive work; 2) for integrating curriculum content with work-experience, the detailed programmes of correlated lessons should be worked out beforehand; 3) the different patterns of productive work-experience that are possible in existing conditions have to be decided; 4) since earning through productive work is one of the objectives, ways and means should be devised to avoid any personal gain; 5) an evaluation procedure for the correct assessment of the productive work should be evolved first; 6) it has to be considered whether the educational outcome of activities like model making would be as effective as that of the productive work in basic education; 7) the percentage of time and marks to be assigned should be decided; 8) in view of meagre financial assistance, best use should be made of the available resources and if necessary, the programme should be modified; 9) teacher orientation and training programme should be drawn up; 10) sufficient literature should be prepared on a language basis at all-India level; 11) if experience in real working conditions in factories or farms cannot be provided to all, other methods of production like handicrafts, cottage industries should be considered; 12) various agencies should be compelled to purchase the finished products; 13) the right type of administrative set-up should be established for implementing the programme.

351 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING, NEW DELHI: General Science Syllabus - classes I to V (Revised). New Delhi, the Council, 1967. vii, 45p.

Based on the experimental edition of General Science Syllabus for classes I-VIII published by the Council in 1963. The present syllabus is in eleven units arranged in three major sections: Section I - Earth-related sciences - 1) our universe; 2) air, water and weather; 3) rocks, soils and minerals; Section 2 - Physical sciences - 4) energy and work; 5) matter and materials; 6) housing and clothing; Section 3 - Biological sciences - 7) living things; 8) plant life; 9) animal life; 10) human body, health and hygiene; 11) safety and first aid. Each unit has been further divided into major concepts and sub-concepts. The arrangement is logical though it does not represent the way children learn or develop interests in their environments. A companion volume, Science for Primary Schools - A Teachers' Handbook, provides suggestions for teaching scientific principles as well as the nature of science.

352 SOLAGRAN A: Some aspects of the school curriculum. Teaching 1967, 40(2), 38-41.

The recommendations of the Education Commission on science-based education and work-experience have been reviewed. Though the Commission's emphasis on science teaching at school and college levels has been welcomed, the need for balancing the material values inherent in modernization and the expansion of scientific knowledge with the moral and spiritual values which the humanities impart has been stressed. While 'disciplinary approach' to science learning is commendable, the discontinuation of the 'general science approach' suitable to students who have no special aptitude for science was not justified. The Report does not suggest ways and means for the implementation of the recommendations. In view of the practical problems involved in the implementation of the programme of work experience - administrative, financial, organizational - the implications of the entire scheme should be assessed first.

353 SOOD J K: Science teaching and curriculum innovations. Teaching 1967, 40(2), 41-4.

A science curriculum should comprise all the activities, in both intent and content, in the school and outside it. The following points need consideration while drawing up the curriculum: 1) new concepts; 2) common conceptual themes of different disciplines; 3) continuity of conceptual themes throughout the school grades; 4) emphasis on key ideas; and 5) emphasis on laboratory work. Programmed instruction is an important tool in framing science curriculum. Some of the suggestions are: 1) the current practice of changing syllabus 'extensively' should be replaced with the concept of 'fundamental change' in organizing the content; 2) this fundamental change in organization of content will lead to a unified approach to the different disciplines; 3) the curriculum should be developed through research by and co-operation of science teachers, scientists and science educators.

ECONOMICS OF EDUCATION

354 ADAMS J Q: Innovation in education and economic development. Indian Educational Review 1968, 3(1), 127-36.

Economic development depends on the ability of the educational system to diffuse skills and aptitudes and to serve as the locus for the creative thinking required for technical and social progress. As development begins, the emphasis in education turns from acculturation of the children towards the provision and enlargement of skills, ideas, and techniques. But there is no system of education which can be prescribed as inherently desirable for each state of advance. This means that experimentation with new educational techniques is demanded so that education may make the maximum contribution to changing society and developing the economy. Innovations in education can be evaluated by (1) the affected administrators, students, and faculty, (2) the use of control groups, (3) standardized tests, (4) employers' and students experiences, (5) economic analysis of costs and benefits, and (6) measures of the long-run contribution of education to development.

355 **ATMA RAM**: Education for economic growth. /Convocation address at the Banaras Hindu University, 17 February 1968/. Yojana 1968, 12(4), 15-17; Education must be part of economic plan. National Herald 18 February 1968, p.7, cols. 2-3. 750 words.

The problems of Indian educational planning in relation to economic growth have been discussed. Since provision for general education for the masses is easier, educational growth generally surpasses economic growth in the developing countries. This results in educated unemployed and creates social and political problems. Large growth and unfavourable age structure of the population (approx. 50% below 20) have two effects: 1) high expenditure on education and social service; 2) effective working force being small there is low effective labour input per capita resulting in low income per capita. Even in the field of scientific and technical education there exists unemployment and under-employment of technically qualified personnel on the one hand, and the country faces acute shortage of skilled manpower required for economic growth, on the other. The following suggestions have, therefore, been made: 1) integrating plans for scientific and technical education with the economic plan; 2) identifying entrepreneurial talent in the younger generation and providing economic and social incentives to launch medium scale enterprise on co-operative basis; 3) reducing the undue value attached to academic distinction and offering incentives to young men to take intermediate level technical courses; 4) emphasizing the role of agricultural and village workers engaged in productive enterprise.

EDUCATION : GENERAL

356 **AGGARWAL J C**: Recent developments in Indian education. New Delhi, Arya Book Depot, 1967. vi, 208p.

The book is in three parts. First part gives an account of educational events and news in the chronological order from Ist January to 31st December 1966. The second part reviews the following problems of education: 1) Education Commission and follow-up work; 2) student unrest - causes and remedies; 3) current problems of university education; 4) triple benefit scheme for teachers; 5) common school and neighbourhood school system; and 6) Education Minister's (T Sen) views on education, based on an interview with the representative of the Hindustan Times, Delhi. The third part presents some educational statistics like educational expenditure (1965-66), average annual salaries of teachers (1951-52 to 1965-66), salary structure of primary and secondary teachers in different States and Union territories, untrained teachers by age group (1965), distribution of teachers in primary schools according to the number of classes they teach (1965), women's education (1950-65).

357 INDIA. EDUCATION MINISTERS' CONFERENCE, 9th, MADRAS, 18-19 JUNE 1966: Proceedings. New Delhi, Ministry of Education, 1968, 211p.

The following items were on the agenda: 1) education in the Fourth Five Year Plan; 2) school education; 3) National Council of Educational Research and Training (NCERT); 4) social education including adult literacy; 5) higher education; 6) technical education in the Fourth Five Year Plan - approach and programmes; 7) sports and games; 8) review of the national scholarship scheme; 9) use of standard terminology in regional languages and production of standard works; 10) vijnan mandirs; 11) improvement of teachers' emoluments; 12) Indian Educational Service. Each item is supported by background information. The following are some of the important points included in the resolutions: 1) correspondence courses in teacher education for untrained elementary and secondary school teachers; 2) strengthening science education at the elementary and secondary stages through various measures; 3) implementation of the Science Education Project with Unesco-Unicef assistance; 4) introduction of work orientation, productive activity, and vocational courses after examining recommendations of the Education Commission; 5) regulating the establishment of sub-standard institutions; 6) close collaboration between NCERT and State departments of education; 7) introduction of model textbooks prepared by NCERT in various States; 8) implementation of the project "Farmers' Education and Functional Literacy" prepared by the Union Government in conjunction with the Literacy Mission of Unesco and FAO; 9) introducing legislation for regulation and control of private educational institutions; 10) desirability of prior discussion among the State governments, UGC and the Ministry of Education, in respect of legislations concerning universities; 11) accurate assessment of technical manpower needs to plan the expansion of technical education; 12) establishing Indian Educational Service after considering the views of the State governments.

358 INDIA. LAWS, STATUTES, ETC: /Legislation in India on education, 1964/. (In India. Laws, Statutes, etc. Summary of legislation in India, 1964). Delhi, Manager of Publications (for Ministry of Law), 1968. 6, 22, 25, 28, 42, 56, 62, 72-3, 81).

The following acts concerning education were passed in the Parliament and in various State Legislatures: 1) Dakshini Bharat Hindi Prachar Sabha Act (Central Act No.14) declares the Sabha to be an institution of national importance and empowers it to grant degrees, diplomas and certificates for proficiency in Hindi and teaching of Hindi; 2) Anugrah Narayan Sinha Institute of Social Studies Act (Bihar Act No.12) provides for incorporation of the Institute as an autonomous body; 3) Madhya Pradesh Krishi Tatha Sambaddha Vigyan Vishwa Vidyalaya (Amendment) Act (MP Act No.15) renames the University as the Jawaharlal Nehru Krishi Vidyalaya; 4) Nagpur University Act (Maharashtra Act No.22) changes the university from a purely affiliating university to a teaching and affiliating university; 5) Bangalore University Act (Mysore Act No.26) establishes and incorporates a federal university at Bangalore; 6) University of Rajasthan (Amending and Validating) Act (Rajasthan Act No.10) provides for validating the reconstituted senate and syndicate and redefines the territorial limits of the university; 7) Rajasthan Secondary Education (Amendment) Act (Rajasthan Act No.25) widens the definition of the expression 'secondary education'; 8) Rajasthan Primary Education Act (Rajasthan Act No.31) provides for free and compulsory primary education in Rajasthan. Other acts, mainly administrative in nature, are: 1) Andhra Pradesh Agricultural University (Amendment) Act (Andhra Pradesh Act No.11); 2) Gauhati University (Amendment) Act (Assam Act No.18); 3) Madhya Pradesh Jabalpur University (Amendment) Act (MP Act No.10); 4) University of Saugor (Amendment) Act (MP Act No.23); 5) Bombay University (Amendment) Act (Maharashtra Act No.18); 6) Jodhpur University (Amendment) Act (Rajasthan Act No.4); 7) Udaipur University (Amendment) Act (Rajasthan Act No.27).

359 INDIA. MINISTRY OF EDUCATION: Report, 1967-68. New Delhi, the Ministry, 1968. 201p. 7 charts.

Some of the significant developments are: 1) enrolment in universities and colleges rose from 17,28,873 to 19,49,012; 2) UGC organized 67 institutes in science subjects involving about 2380 teachers and 81 American consultants. In addition, 51 summer institutes in science subjects, 9 in English language and one each in agricultural, political theory and behaviour of college teachers and also summer institutes in chemistry for undergraduate students were organized; 3) formulation of a national policy of education is nearing completion; 4) school feeding programme for children in elementary schools initiated in 1962-63 is in operation in 13 States and 5 union territories covering about 9 million children; 5) National Council of Educational Research and Training had 32 research projects in the different departments of National Institute of Education. It published 31 model textbooks and 25 textbooks were at different stages of preparation and production; 6) there are now 14 rural institutes set up in accordance with the scheme of rural higher education initiated in 1956. The number of students enrolled during 1964 was 3793; 7) about 40 centres offered postgraduate courses in engineering and technology with an enrolment of 1800. 137 first level degree institutions in engineering and technology and 284 diploma level institutions turned out 1305 graduates and 22260 diploma holders; 8) the Commission for Scientific and Technical Terminology has finalized about 2 million terms and 12 glossaries have so far been published.

360 INDIA. MINISTRY OF EDUCATION: Report on educational developments in India in 1966-67 presented at the 30th International Conference on Public Education, July, 1967. New Delhi, the Ministry, 1967. 101p.

The report consists of 8 chapters: The first chapter describes the educational system. The second chapter deals with educational administration which includes educational planning, budget and school buildings. The third chapter makes a quantitative assessment of educational development at different levels. The fourth chapter describes the organizational structure of education, compulsory education and provision of free education. Fifth chapter describes the activities relating to changes in curricula, syllabi, methods and textbooks. Sixth chapter is devoted to teachers. Seventh chapter deals with auxiliary services like special education, social psychology, vocational guidance, educational research, international co-operation. Eighth chapter presents a report on the steps taken by Government of India regarding recommendation No.34 adopted at the 15th session of the conference on women's education. Annexure gives some statistical data and diagrams showing Indian educational system.

361 SIQUEIRA T N: Modern Indian education. 2nd ed. Calcutta, Oxford University Press, 1967, 304p (Teaching in India Series, 30).

The first part containing 7 chapters provides a historical background. They cover ancient and mediaeval education, education in early British rule and during 1835-1959. The second part in 11 chapters deals with the following problems: women's education, physical education, adult education, religious education, experiments in education, Sargent scheme, University Education Commission, Secondary Education Commission, Education Commission (1964-66), language problem. It has been concluded that there has not been any sufficient or effective change in the entire system of education in a way worthy of an independent nation eager not only to keep pace with others but to make its contribution to the general progress of the world's knowledge.

362 YOGI C V: Asamgatamanina mana vidyavidhanam - voka vimarsa. (= Our inconsistent educational system - a review) [Telugu]. Andhra Prabha 29 March 1968, p.7, cols.1-3. 872 words.

The following suggestions have been made for curbing indiscipline among students and also for raising the standards of education: 1) elementary education should be of 7 years' duration during which a thorough knowledge in mothertongue, Sanskrit, and English should be imparted; 2) later special subjects should be taught to only deserving students according to their aptitudes; 3) there should be no link between educational attainment and employment opportunities; 4) students should be allowed to appear for higher examinations according to their abilities irrespective of the number of years of formal education or examinations passed.

EDUCATIONAL PSYCHOLOGY

363 BHOJAK B L, MEHTA P: What problems do adolescents face? Education and Psychology Review 1968, 8(1), 70-8. 5 ref.

Hindi version of Mooney's problem check list comprising 201 statements falling in the following areas was administered to a sample of 100 class IX students (50 boys and 50 girls) belonging to four higher secondary schools of Jodhpur: 1) health and physical development; 2) school; 3) home and family; 4) money, work and future; 5) relationship between boys and girls; 6) relation to people in general; and 7) self-centred concerns. The findings are: 1) the students on the whole face problems falling mainly into areas 1, 7, 4 and 5. The problems of boys fall into areas in a descending rank order as under: 7, 5, 4, 1, 2, 6 and 3. The girls show the following rank order: 4, 1, 7, 6, 2, 5 and 3. The top 10 problems of boys fall into 5 areas with percentage noted against each: 7(40%), 4(20%), 1(10%), 5(10%), and 6(10%). The areas containing the top 10 problems of girls are: 4(30%), 1(30%), 2(20%), 3(10%), and 6(10%).

364 CHATTERJI N: Comparison of performances of tribal and non-tribal boys of Tripura on five performance tests. Educational Miscellany 1966-7, 111(3-4), 8-14. 8 ref.

A sample of 500 tribal boys and 500 non-tribal boys was divided into 5 age groups of 11+ to 15+. A total of 5 different performance tests was given to each boy of the two categories. The tests were: 1) Alexander's Passalong; 2) Kohs' Block Design; 3) Dearborn's Form Board; 4) Memory; and 5) Picture Tests. The following are the significant findings: 1) the sample of tribal boys compares unfavourably as a group to non-tribal boys of the same age group; 2) the scores of both the groups are, however, below standard which indicates a general backwardness of the children of Tripura; 3) significantly, in the Passalong test which involves movement of concrete materials in a problem-solving situation, tribal boys scored consistently higher. In contrast, the superior performance of non-tribal boys on tasks involving analysis and discrimination of sizes, shapes, picture as well as immediate and retentive memory suggests that these aspects of intelligence are not so important in tribal life; 4) the low scoring intelligence of tribal boys should not be attributed to their inferior innate intelligence, because this backwardness can be removed by improving their environmental conditions.

365 DAFTUAR C N: Certain correlates of study habit. Journal of Psychological Researches 1967, 11(3), 97-101. 7 ref.

The object of the study was to investigate whether study-habit (SH) is in any way related to such factors as grade difference (difference in educational level), sex, age, and economic background of students. A sample of 50 pre-arts male, 50 pre-arts female, and 50 postgraduate male students of Patna University was randomly selected and Jamuar's Study Habit Inventory (Jamuar K K: Investigation of some psychological factors underlying the study-habits for college students, Ph.D. Thesis. 1961. Patna University) was administered. On the basis of different correlational analyses it was found that economic status of the family and sex are positive and significant correlates for SH while the grade of the students and age were insignificantly correlated. On X^2 test the sample was found to be normally distributed.

366 GANDHI J S: Inter-learning among heterogenous groups of mentally retarded. Indian Journal of Mental Retardation 1968, 1(1), 34-7.

The experiment was designed to estimate the interaction resulting from inclusion of children of several grades of mental retardation in a group. The experiment was conducted at the Government Institute of Special Education, Chandigarh in which a sample of 9 retarded children - [2 severely, 4 moderately (trainable) and 3 mildly (educable)] was kept under observation for one year. Monthly observations were made and recorded regularly. The position of children at the first month's observation was compared with the observation made in the last month of the year of study on a list of 8 variables fixed for the experiment. The conclusions are as follows: 1) inter-learning among various categories of mentally retarded does take place; 2) the inferiors benefit more from the superiors though the superiors too may benefit from them; 3) the chances of positive learning in the heterogenous group are more, while the chances of negative learning are not to be ruled out; 4) the mixed group system in an institution may be economical, because the superior group may be helpful in looking after the inferior grade. But the mixed group system is recommended only if the institution has facilities for managing severely retarded children.

367 GANGULY A K: Comparative study of the variation in intellectual factors among high school boys due to different systems of secondary education. Education and Psychology Review 1968, 8(1), 15-25. 15 ref.

The following three systems were compared: 1) Aligarh Muslim University system (AMU) - residential; Urdu as medium of instruction; stress on co-curricular and extra-curricular activities; 2) U.P. Board system (UPB) - mostly non-residential; Hindi as medium of instruction; less stress on extra-curricular and outdoor activities; 3) public school system (PS) - mostly residential; English as medium of instruction; emphasis on co-curricular and extra-curricular activities. A sample of 180 students (60 from each system) was selected by means of matched-pair technique of controlled selection in order to equate for the variables of age, level of education, and socio-economic background. The students were subjected to 17 ability tests. The following are some of the conclusions: 1) some variation in intellectual factors due to the difference in system was observed; 2) PS system offers the best quality of schooling for stimulating the growth of intellectual factors; 3) UPB is better than AMU for stimulating the growth of concept-formation and AMU is better than UPB for stimulating the growth of spatial plus induction group factor; 4) the English medium of instruction in the PS system was found useful for better performance at the tests of various ability factors, because of better intellectual stimulation through English medium.

368 GEORGE E I, ABRAHAM P A: Sex differences among secondary school pupils in Kerala. Journal of Psychological Researches 1967, 11(3), 112-8. 12 ref.

The study was conducted to compare boys and girls in the secondary schools on certain variables. The sample consisted of 2038 pupils from standard X in 25% stratified random sample of high schools in the educational district of Kerala. The following tests were used: 1) test of General Mental Ability in Malayalam; 2) Minnesota Paper Form Board Test; 3) an adjustment inventory; 4) a school adjustment inventory; 5) Maudsley Personality Inventory in Malayalam; 6) a general data questionnaire. The scores of pupils in the SSLC examination were taken as indices of achievement in different subjects. The following are the conclusions: boys and girls were comparable in age, order of birth, extraversion scores, home adjustment, school adjustment and in achievement scores for Malayalam and English. But boys were found to be significantly better than girls in intelligence, health, adjustment, social adjustment, emotional adjustment and for achievement scores in English, social studies, general science and general mathematics as well as self-rating scores for curricular activities.

369 GUPTA V P: Persistence for mental task, sex, introversion and extraversion. Indian Journal of Applied Psychology 1968, 5(1), 45-7. 7 ref.

The experiment was designed to study the effect of personality variables (extraversion and introversion) and sex differences on persistence in mental task. The personality characteristics was studied in terms of Maudsly Personality Inventory of Eysenck which was found reliable for use on Punjabi population (Jotata S. Some data on the Maudsly Personality Inventory in Punjab. *British Journal of Social Psychology* 1964, 148). The sample consisted of a group of 40 college students (20 men and 20 women) between 20 and 24 years. They were divided into four personality groups, 10 in each group (5 males and 5 females), as differentiated by MPI scores. Each student was given simple arithmetical problems to solve orally. Application of a 't' test to the differences between the means of persistence on mental task disclosed significant difference between the high and low scores on E scale of MPI. The N scores and persistent scores, E scores and persistent scores correlated +.38 and -.36 respectively which was significant at .05 level. Thus the extraverted students significantly decreased while the introverted subjects increased the persistent measures on a mental task. The results showed that boys were more persistent than girls on mental task though not significantly.

370 HAFEEZ A, QURAISHI Z M: Pattern of the habits of study among engineering students. Education and Psychology Review 1968, 8(1), 45-70. 6 ref.

A questionnaire consisting of 60 questions falling under the following areas was administered to a random sample of 161 engineering students (undergraduate, postgraduate, and research): length of the study period; determination to study; time, mode, method, programme and place of study; time for rest and sleep; distractions; retention and understanding of class lectures; matter studied; hobby reading and preparation for examinations. The following are some of the findings: 1) majority of students study for 2 to 3 hours daily besides class periods; 2) about 50% do not study regularly while moderate number studies under pressure of work; 3) a considerable number of students have a planned study programme; 4) most of the students read their notes as well as books. Books are mostly used by research students; 5) they take down points while studying and try to recall what they had been studying; 6) a large number of them read to increase knowledge and do not restrict themselves to the essential; 7) equal time is not devoted to all subjects. Some of them devote less time to subjects they do not like; 8) majority of students are not easily distracted by noise; 9) majority of them do not ask questions during the class lecture but listen critically; 10) students face examination without any anxiety; 11) some time is devoted for hobby reading which is limited generally to fiction and magazines.

371 JACHUCK K, DUTTA T, DAS J P: Age stimulus, meaningfulness and semantic satiation. Indian Journal of Mental Retardation 1968, 1(1), 20-8. 9 ref.

In experiment I, 30 male students from each of the 3 age levels (7-9, 13-14, 19-20) rated 5 meaningfulwords against 3 semantic differential scales. In experiment II, 30 girl students (mean age 8) and 30 women (mean age 20) rated 5 meaningful and 5 nonsense syllables on a seven-point wooden scale with 7 shades of blue (from light to deep, one shade for each scale value). The results lead to the following conclusions: 1) nonsense syllables show little satiation following repetition whereas meaningful words are clearly susceptible to satiation; 2) boys below 16 years of age are less prone to satiation than adults of about 20 years of age. However limited support for the second conclusion could be obtained. The implications with regard to mentally retarded have also been discussed.

372 JHA N, SINHA S N, PRASAD M S: Verbal learning under ego-oriented vs. task-oriented instructions in high and low anxious subjects. Indian Journal of Experimental Psychology 1968, 2(1), 9-11. 3 ref.

The Manifest Anxiety Scale was administered to 200 male undergraduate students of Magadh University and 30 students with anxiety scores of 30 and above were selected as the high anxious (HA) group and 30 students with anxiety score of 9 and below were selected as the low anxious LA group. The age of the selected students ranged between 16 to 20 years. Only one list of 15 nonsense syllables was used. Half of the students in both HA and LA groups were given ego-oriented instruction and the other half were given task-oriented instruction. The mean number of trials required to learn the list and SD of ego-oriented students of both HA and LA groups were lesser than their task-oriented counterparts. Significant difference existed between any two groups. The ego-oriented HA subjects were superior to task-oriented HA subjects due to the introduction of ego-involving instruction. The ego-oriented HA subjects were superior not only to their own half, but also to the LA subjects with task-oriented instruction. Ego-oriented LA subjects had superior performance than ego-oriented HA subjects. This may be presumably due to the interference by the raised magnitude of irrelevant responses.

373 JOSHI M C, SHARMA M D: Sex differences in value preferences. Journal of the Gujarat Research Society 1968, 30(117), 43-7. 6 ref.

A sample of 60 adolescent boys and 60 girls constituting 4 groups of 30 each belonging to the same educational level (class X) and having relatively similar socio-economic background, was selected from a non-coeducational institution. Following the pair-by-pair comparison method 30 ego-ideals were randomly presented in all possible pairs to the subjects, who were asked to prefer one out of the two pairs on the grounds of the values personified by each of them. The following are the conclusions: 1) many common value patterns patterns exist among adolescent boys and girls, but significant differences were also observed between their hierarchies and intervals between any two consecutive preferences in each group; 2) the cluster of values with highest loading for the boys was found around the values of perfection and idealism, religion, non-violence, and patriotism; 3) in girls, parallel clustering was found with minor changes in relative positions of values within the cluster; 4) girls gave highest preference to religious value whereas the boys preferred perfection and idealism; 5) significant difference was observed in relation to monetary value; 6) the values of bravery and strength were preferred more by girls.

374 KAKKAR A: Study of relationship among certain adolescents' areas of adjustment. Journal of Psychological Researches 1967, 11(3), 93-6. 8 ref.

The study was aimed at exploring the relationship among four areas of adjustment, viz. home, school, health, and society and to locate the area in which adolescents confront maximum number of problems. The sample consisted of 100 boys and 100 girls drawn from class XI of 9 higher secondary schools of Allahabad. A majority of them fell between the age group of 15+ and 16+. The personality inventory constructed by the Bureau of Psychology, U.P. (Allahabad) consisting of 145 problems was used. The conclusions are: 1) adjustment problems of adolescent boys do not differ significantly from those of girls; 2) the school causes a great deal of anxiety to many, because adolescents confront maximum number of problems in this area; 3) problems of adjustment cannot be compartmentalized. In reality, no problem can be deemed as belonging to one category exclusively as it has psychological aspects, sometimes minor, but sometimes significant.

375 KUPPUSWAMY B: Survey of mental retardation among children enrolled in middle schools of Mysore City. Indian Journal of Mental Retardation 1968, 1(1), 12-9. 7 ref.

Of the 9773 students on the rolls of 47 middle schools, 10% of the students (598 boys and 402 girls) in each section of each class of each school were selected for group testing. On the basis of the result of the test the bottom-most 49 (actually 38 students were available for the study) students who constituted the lowest 5% were selected for individual study using the following tests: 1) Binet scale - revised by V V Kamath (Measuring intelligence of Indian children. Bombay, Oxford, 1967); 2) Segvin's form board and Knox's cube imitation tests (Catlell R B. Guide to mental testing. London, Univ. press, 1936); 3) Raven's progressive matrices test (children's form). The details of 22(1.41%) cases having IQ below 80 have been given, which show that only 14 cases are mentally retarded - 10 with IQ's varying from 50 to 60 and 4 withIQ's varying from 25 to 49. It was significant that the majority of the retarded came from the lower middle group or the upper lower group.

376 MOHANTY G S: Parental socio-economic status of college students as a variable in neuroticism, anxiety and hostility. Journal of Psychological Researches 1967, 11(3), 102-5. 4 ref.

A sample of 93 undergraduate students of the Indian Institute of Technology, New Delhi (age group 19-26) was selected for the study. The following tests were used: 1) Taylor's Manifest Anxiety Scale (Journal of Abnormal Social Psychology 1953,48,265); 2) Siegel's Manifest Hostility Scale. ibid 1956, 52,368); 3) Eysenk's Questionnaire on Neuroticism (Journal of Applied Psychology, 1958, 42, 14); 4) Personal data sheet eliciting information regarding parental socio-economic status (SES) and other particulars of the subjects. Statistical analysis of the study points out that subjects belonging to middle SES are more likely to score higher on neuroticism scale than those belonging to high and low SES. On the average, those belonging to low SES score lowest on neuroticism. Even considering the small size of the sample it can be concluded that among the college samples most of the top scorers of neuroticism belong to the middle SES status and that most of the low scorers belong to the low SES. Although the view point of Hollingshead and Redlich (Social class and mental illness - a community study. N.Y., Wiley, 1958) finds support in this study, their observation about the role of SES in hostility is not true for Indian college sample.

377 NIJHAWAN H K: Relationship of children's ages, parents' income and occupations to observed patterns of nursery school behaviour. Indian Journal of Applied Psychology 1968, 5(1), 23-31. 29 ref.

A preliminary survey was conducted in which 50 nursery school children of ages 3, 4 and 5 years were observed with regard to six social behavioural aspects: co-operation, competition, aggression, negativism, ascendance and sympathy. Time sampling and behavioural sampling methods of observation were used. Observations were done in the two situations (indoor activities and outdoor activities). Chi square test was applied to find out the relationship between the behavioural categories and ages of children, parents' income and occupations. In all the three cases a significant chi square value was obtained. The relationship of age with behavioural categories would mean that maturational factors, besides other factors, are important in social development. The relationship of parents' income with behavioural categories would mean that something goes on in the environment of the child belonging to the low income group which is different from what goes on in the environment of the child from a high income group. The same can be said with regard to relationship between behavioural categories and parents' occupations, i.e. the impact of parents' occupations on social development of children takes place through the different environments created by these. To get precise answers to these questions the respective family relationships as belonging to income and occupation groups have to be studied.

378 PAL S K: Personality adjustment of engineering and medical students. Indian Journal of Applied Psychology 1968, 5(1), 32-4. 3 ref.

A sample of 50 fourth year engineering and 50 fourth year medical students was administered Saxena's Adjustment Inventory (First mental measurement handbook for India. New Delhi, National Council of Educational Research and Training, 1966. p.382) which provides measures for general adjustment as well as five separate areas, viz., home, health, social, emotional and college. Analysis of data revealed the superiority of medical students on general adjustment as well as on social adjustment. This superiority of medical students is in line with the role that they are required to play as physicians and surgeons. Lower score of engineering students on social adjustment could be due to the fact that as academically brighter students they might be concentrating more on individual accomplishments in the academic field and therefore, do not pay much attention to ensure better social adjustment.

EDUCATIONAL RESEARCH

379 CHATTERJEE B B: Research in educational psychology. (In Dasgupta S, Ed. Methodology of social science research in India. New Delhi, Impex India 1967, 87-100. 10 ref.

Presents an assessment of 241 studies conducted in India as recorded in the Psychological Abstracts (1958-64), in respect of their design, instruments and tools, content, methods of data analysis, and reporting: 1) Design: either the sample size is quite small or too large. Prior estimation of the most economic sample size, careful randomization and stratification, matching or equating and similar refinements and sophistication are rare; 2) Tools: cultural free tests developed abroad, adoption of foreign tests, ad hoc and improvised tests of questionable reliability, and occasional well-planned but urban-oriented new tests are used; 3) Content: instead of systematic studies of basic issues over a period of time, trivial, inconsequential and trite subjects form the bulk of research reports; 4) Data analysis: although majority of the methods are unsatisfactory, most advanced statistical methods are also used. Modern techniques like information and communication theory analysis are, however, absent; 5) Reporting: much of the raw data is reported without any discrimination and condensation, thus increasing the bulk of the report. The following suggestions have been made: 1) building up a comprehensive inventory of research questions incorporating several permanently built-in features like level of sophistication, coverage and relevance, continuous feed-back from the field; 2) following a method which could be the outcome of a direct transaction between the theory and aims, and goals of the project.

380 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING, NEW DELHI: Third Indian year book of education - educational research. New Delhi, the Council, 1968. xxxvi, 317p.

The publication presents in 20 chapters a survey of literature relating to research work done along with their qualitative assessment in the following areas of education, by different specialists: 1) Prem Nath: Philosophy of education; 2) R.B. Mathur: Education and social changes 3) A. Mujib: Psychology of learning; 4) N. Mukerji: Child and adolescent development; 5) B. Ghosh and L.N. Gupta: Curriculum; 6) N.P. Pillai: Methods of teaching school subjects; 7) R.H. Dave: Educational evaluation; 8) S.K. Mitra: Tests and measurement; 9) S.B. Adaval: Teacher education; 10) S.M. Mohsin: Guidance; 11) S.N. Mukerji: Educational administration; 12) A. Misra: Educational finance; 13) S. Rangarajan: Legal education; 14) P.K. Tripathi: Legal education; 15) B.L. Taneja: Medical education; 16) L.S. Chandrakant: Research and extension services in technical education; 17) S.G. Pendse: Technical training; 18) M.L. Gupta: Technical and professional education - employment; 19) T.A. Koshy: Basic and social education; 20) S.N. Mukerji: Other branches of education. The introduction presents a university-wise review of Ph.D theses and M.Ed. dissertations and presents a general qualitative evaluation of research work in the context of work done in other countries.

381 **PARASINS N R:** Educational research in the Bombay university. Progress of Education 1968, 42(6), 214-18.

Presents an analysis of the research work done in Bombay University which instituted M.Ed. and Ph.D. (Education) degrees in 1936 and 1941 respectively. The doctoral theses cover the following areas: depth psychology and education; educational and psychological problems of blind children (age group 7-21); tests and measures; history of education; different aspects of language study like bilingualism, basic vocabulary, teaching of Marathi to non-Marathi students; educational administration; compulsory primary education; secondary school curriculum; assessment of modern educational values; reading interests. Some of the significant topics covered by M.Ed. theses and dissertations are: educational surveys; critical study of school textbooks; psychology of mentally retarded children; teaching techniques; education of the backward community and the physically handicapped; educational contribution of some Indian thinkers like Gandhi, Tagore, Radhakrishnan. Till 1961 the doctoral theses, M.Ed. theses and M.Ed. dissertations constituated 40, 46.6 and 11.4% respectively of the total output of Indian universities.

EDUCATIONAL SOCIOLOGY

382 **MEHTA C:** Improving the group-relations in the class. Educational Forum 1967, 12(4), 10-14. 4 ref.

The sample consisted of 3 groups - 2 boys (groups A and B) and 1 girl (group C) of class IX (age level 14+) and one group of co-educational class (age level 12+) (group d) of a higher secondary school in New Delhi. Sociometric technique was used for the identification of isolates, neglectees and rejectees. After the experiment the percentage of heterogeneousness decreased in groups A, C, D (group D registered considerable decrease), but increased in group B. The sociogram of group A before the experiment showed three distinct sub-groups (cliques), while the post-experiment sociogram did not show such cliques. The following conclusions have been drawn: 1) each group of individuals is a constituent of isolates, populars, neglectees, rejectees, etc. which can be identified by means of sociometric technique; 2) the heterogeneity of the group reduces to a large extent by the technique 'choice-seating' arrangement; 3) the choice-seating arrangement results in the homogeneity of the group irrespective of sex and age of the individuals; 4) the technique is more effective in girls' than in boys' group of the same age level; 5) the periodical guidance and counselling to isolates, neglectees, etc. accelerates the process of homogeneity.

383 **PATEL** K: Contribution of language statement of social acceptance friendship and social rejection among high school students. Advances in Education 1967, 2-3 (4, 1-2), 23-9. 3 ref.

The aim of the investigation was to discover whether language achievement affects interpersonal relations. Language achievement was measured by the 1960 revision of the Cooperative English Test, Form 2B and information on interpersonal relations was obtained using sociometric test. Data were collected on 313 boys and 136 girls of class X from English medium schools of Calcutta. The sociometric choices were limited to the same sex as no coeducational school was included in the study. Using four language variables (vocabulary, level of comprehension, speed of comprehension and English expression) as predictors and three sociometric factors (social acceptance, friendship and social rejection) as criteria, regression equations were prepared for the two sexes. The results are: 1) vocabulary level of comprehension and speed of comprehension make no significant contribution to social acceptance in the case of girls; 2) the regression co-efficient for English expression is significant at the .05 level; 3) the regression co-efficient for vocabulary is significant at the .01 level for social rejection and at the .05 level for friendship for girls; 4) none of the four language variables affects social acceptance and friendship significantly in the case of boys; 5) the regression co-efficient for vocabulary is marginally significant at the 5 percent level for social rejection.

384 **RUHELA** S P: Sociology of education in correct perspective Journal of Education and Psychology 1968, 25(4), 291-305. 20 ref.

The background of the sociological study of education and the difference between educational sociology and sociology of education have been discussed. Educational sociology deals with the applied side of sociology in order to improve certain situations in the educational system or the school while sociology of education mainly deals with theoretical research studies on educational system or school as a social institution system or school as a social institution. A review of researches done in the field of sociology of education in foreign countries and in India has been made. An adequate and comprehensive sociology of education in India should cover the following fields: 1) social history of India in the context of education; 2) sociology of educational aims in modern India; 3) crucial social issues and problems in contemporary Indian education; 4) education as the process of socialization; 5) sociology of school; 6) sociology of teaching profession; 7) education of special groups in India; 8) sociology of educational research in India.

385 MITRA A: Illiteracy and social change - neglect of education now reaping its revenge. Mail 20 March 1968, p.4, cols. 3-6; 21 March 1968, p.4, cols. 3-6, p.6, col. 3. 5550 words.

Stresses the importance of universal literacy to bring in a modern and secular society by eliminating various social prejudices. An analysis of the Census data of 1961 relating to 324 districts grouped in four levels of development revealed striking and positive association between the highest levels of development and literacy and education. Universal literacy, therefore, should be achieved first, if necessary sacrificing higher stages of education. Adoption of unconventional methods for all-out mobilization of teaching resources has been urged to achieve the literacy targets. The following suggestions have been made: 1) appointment of teachers from local literate unemployed or underemployed population even if they are not trained. The proportion of wastage, drop out, and stagnation increases with that of non-resident teachers; 2) suitable adjustment of classes, sessions and vacations to the agricultural calendar; 3) ensuring local assistance in erecting school buildings, using indigenous construction material; 4) providing mid-day meals in schools to prevent wastage, drop-out, and stagnation. Some psychological preparation, dedication, exhortation and compulsion are essential prerequisites for the success of the programme.

386 NATIONAL SEMINAR ON ELEMENTARY EDUCATION, 7TH, MAHABALESHWAR (MAHARASHTRA), 15-20 May, 1967. Report New Delhi, Ministry of Education, 1968, 59p.

Of the various recommendations made on the following topics, the significant ones are noted against each: 1) measures to promote enrolment and attendance including action programme for promotion of girls' education - opening part-time schools as pilot projects for girls above 8 and in the compulsory age-group who never attended schools; 2) special problems of educating scheduled classes and scheduled tribes and provision of schooling facilities in sparsely populated areas - (a) appointment of tribal teachers in tribal areas; (b) using the mother tongue of tribal children; 3) training of teachers - (a) the duration of the course should not be less than two years; (b) opening a few comprehensive training colleges as a pilot project; 4) planning of work experience programmes - trainees acquainted with the concept of work-experience to enable them relate it to local conditions; 5) school improvement programme and community participation - (a) giving priority to the construction of school buildings, (b) paying greater attention to science teaching, (c) supplying free meals and school uniform, (d) increasing the scope of the State Institutes of Education integrating all units related to the promotion of primary education in them; (e) increasing the number of demonstration schools; (f) treating standards I - III as one ungraded unit. No child should be detained in Standard I or II; 6) school plans: preparing a developmental plan which should include the academic growth of teachers, in addition to various physical and material aspects; 7) the school complex - implementing the recommendations of the Education Commission on the establishment of school complex.

EXAMINATION AND EVALUATION

387 DANDEKAR V M: Statistical reform of the system of evaluating results of mass-conducted examinations. Indian Educational Review 1968, 3(1), 1-19, 3 ref.

The recommendations of the University Grants Commission's Committee on Examination Reform (Report on examination reform. New Delhi, 1962. p.44) regarding the marking of examination scripts and the statistical methods employed by the University of Gauhati (Taylor, H.J. Operation mass mark. The Gauhati University, 1963) have been examined and the shortcomings of the method have been pointed out. On the basis of the discussions a comprehensive proposal has been put forward, the salient feature of which are: 1) allocation of bundles of scripts of equal average quality to different examiners adopting the principle of randomization; 2) adjusting the marking by different examiners to a common pattern to ensure comparability between the evaluations by different examiners. This procedure involves two stages: (a) establishment of norms comprising the entire statistical distribution of marks specified by proportions of students falling within certain class ranges, each class being denoted by a letter grade; (b) converting the numerical marks assigned by examiners into letter grades; 3) working out the over-all average grade for each candidate by converting the grades in different subjects into scores, averaged simply or weighted appropriately and later reconverting the scores into an over-all grade. The different stages have been illustrated with examples.

388 DHALIWAL A S: Self-defeating system of testing students. Statesman, Calcutta, 6 March 1968, p.6, cols. 4-6. 1850 words.

Experiments have shown that examinations of the essay type lasting three hours are self-defeating because they fail to assess the true worth of a student and lack in reliability, objectivity and practicability. On the other hand it has been established that the average marks based on a number of continuous examinations are highly consistent and reliable.

The following suggestions have, therefore, been made: 1) evaluation through written essay-type tests as a continuous process and an integral part of teaching and learning situations; 2) raising the co-efficient of test-retest reliability of essay-type examination by computing the average of the scores awarded by six examiners or by making the candidates take at least six examinations of moderate reliability; 3) partial use of objective type tests to make measurement and evaluation more meaningful; and 4) switching over to internal assessment only after standardizing the system.

389 GLUSHENKOV V A, BHANDARI K S: Evaluation methods for constant checking of pupils' knowledge. School Science 1967, 5(4), 295-304.

Presents salient features of the evaluation system developed as part of the experimental project undertaken by the Department of Science Education (National Council of Educational Research and Training) for teaching biology, physics, mathematics and chemistry. The most significant methods are: 1) Oral checking before introducing new material as a means of correlation between the previous and the present material; 2) Written checking to assess the pupils' comprehension of the material taught. Some of the methods are: (a) control (checking) work on the previous material, (b) short written work on different problems in the course of a lesson, and (c) written home work; 3) Checking with the help of experiments done by the pupils - practical work is a useful method of checking pupils' knowledge and skills. Pupils are given experimental problems, requiring the exercise of the entire scope of their knowledge and skills obtained in the course of studying one or two themes. Each method has been explained with a number of examples. A five-point scale (excellent, good, fair, poor, and very poor) for the gradation of pupils' achievements has been suggested.

390 SIQUEIRA T N: Examinations. Journal of the Mysore State Education Federation 1967-68, 21(5), 101-4.

The unreliability of the present examination system as a test of skills or knowledge of students has been highlighted. Since examinations in technical subjects like medicine and engineering have certain definite objects both in setting question papers and evaluating the answer scripts, two factors also can be introduced in other tests: 1) a clear definition of the object and scope of each examination. Passing a lower examination would not qualify a student for a higher course. Each course should have its own criteria of student selection; 2) too much emphasis should not be laid on written examinations of a few hours' duration, neglecting the students' work throughout the course. A proportion of the total marks should be set apart for sessional work so that the margin of error in the final result is correspondingly reduced. Another suggestion is to indicate the rank order alone by the examiner in order to reduce the incidence of error in marking. The ranks should be converted into numerical marks by the chief examiner, which would further equalize the marks awarded in the different subjects like mathematics, biology or chemistry and literature.

FINANCE

391 MATHUR M V: Study in costs of education in India during the period 1951-61 (NIE - HEM Project 007). Indian Educational Review 1968, 3(1), 161-72.

The objects of the investigation were: 1) to study the growth and variations in educational expenditure with reference to all objects/institutions, States/Union Territories, sources and managements; 2) to examine the pattern of expenditure from different sources of educational finance; and 3) to study the relative performance of different States. The following are some significant findings: 1) educational expenditure rose from Rs.1,144 million to Rs.3,444 million - an average rate of growth of 11.7% per annum; 2) per capita expenditure rose from 3.2 to 7.8; 3) all the States seem to have shared the general increase in per capita expenditure; 4) of the total increase, 72.2% was direct expenditure; 5) the bulk of the direct expenditure was spent on schools (72.1%), followed by university and higher education (15.1%) and special education (0.9%): 6) in indirect expenditure, buildings and scholarships accounted for 51.9 and 26.1% respectively; 7) Government institutions recorded the highest rate of growth in expenditure, 8) average annual rate of growth of enrolment was 6.5%; 9) the total expenditure from Central funds increased from 36.2 million to Rs.296.6 million; 10) the State Governments' contribution rose from Rs.617 million to Rs.2,045 million. The pattern of expenditure varied a great deal from State to State; 11) expenditure from local body funds increased from Rs.1.25 million to 2.25 million. The bulk of expenditure was in the form of direct expenditure; 12) in 1960-61 school fees accounted for about 20% of the total expenditure on education but the relative contribution of fees to total expenditure declined during the decade; 13) the expenditure from endowment and other sources increased from Rs.132.8 million to Rs.287.7 million. The relative position of different States was determined with the following criteria: 1) accomplishment in education; 2) ability to support education; 3) the degree to which accomplishment is commensurate with the State's ability to support education; 4) efforts of the States in education; 5) efficiency of the educational effort; 6) growth of literacy in the States.

The relative positions of the 15 States were as under: Kerala, Punjab, West Bengal, Maharashtra, Gujarat, Uttar Pradesh, Mysore, Madras, Bihar, Rajasthan, Assam, Andhra Pradesh, Jammus Kashmir, Madhya Pradesh and Orissa.

GUIDANCE AND COUNSELLING

392 DAS S K: Dynamics of counselling. Prajnan 1968, 2(1), 1-4.

Counselling procedures should be planned in terms of the dynamics with which maturation takes place: 1) helping the clients in overcoming feelings of distaste and embarrassment in facing his problem; 2) development of correct insight by eliminating distortions introduced by self-concept; 3) providing an atmosphere free from censure and coercion, wherein the creative and integrative forces of the individual are free to work; 4) helping the client in advancing his thinking. The basic factors governing a counselling situation therefore are: 1) acceptance of the client; 2) dealing with the core of the clients' remarks; 3) division of responsibilities, and 4) amount of lead in counselling. The three diferent schools of thought on counselling have also been discussed: 1) directive, where the counsellor plays the leading role; 2) non-directive, where the counselee plays a more active role; and 3) eclectic which is based on concepts taken deliberately from the views of others rather than based on one view point exclusively.

HIGHER EDUCATION

393 KOTHARI D S: Progressive and strong universities [convocation address]. Tribune 25 February 1968, p.1, cols. 4-5; p.12, cols. 4-5. 1000 words.

The basic aim of higher education should be to promote common citizenship and culture, foster national integration, and contribute directly to national productivity and the expanding frontiers of knowledge. Since industry and agriculture are becoming increasingly science-based, universities should play an important role in developmental activities. Instead of fragmentation, available resources should be pooled together for postgraduate education which occupies a key position in the educational set-up. Development panels should directly work with vice-chancellors for the determination of priorities and best possible utilization of resources. Educational improvement, and making it science-based cannot be delayed, because of the involvement of national development, welfare and security. The study of India's composite culture, philosophy, ethics and religious thought as a vital part of liberal humanistic education has been emphasized.

394 PYLEE L M: Critical study of the Kerala university Bill, 1967 being the memorandom submitted on behalf of the Kerala Private College Managements' Association to the Select Committee. Kerala Educational Review 1968, 6(1), 5-24.

Private colleges have been unjustly dealt with in the Bill [See Vol 2, abstract No.88]: 1) by denying them their rightful place in the syndicate and the senate; 2) by not ensuring proper financial aid for them; and 3) by interfering in some of the fundamental rights, which threatens their very existence. Further, the various provisions of the Bill violate the two basic prerequisites of a modern university viz, : 1) university autonomy which means not merely academic freedom but also administrative and fiscal freedom, and 2) democratic administrative system and effective participation of the academic community in the affairs of the university. The following are some of the suggestions given: 1) adequate representation of the private colleges on the senate and 2) a statutory guarantee for financial aid to private colleges, 3) freedom to levy fees according to management's discretion; 4) election of principals of colleges as members of either the Senate or the Academic Council; 5) independence for Academic Council; 6) four-year term of office for the Senate; 7) establishment of a Faculty of Adult Education; 8) creation of a Council of affiliated colleges and 9) institution of a Finance Committee.

INSPECTION

395 KAUL L C: School improvement through inspection. Cenbosec News and Views 1967, 3(4), 7-8, 13.

A study conducted by the author on 'Mode and range of inspection of middle schools under the Municipal Corporation, Delhi reveals that 1) the inspection reports cover all major aspects of the school's functioning; 2) but the proportion of items to which inspectors do not devote much time is large, while important aspects like staff meeting, teacher's problem, drop-outs, health care, experimentation are utterly neglected; 4) the categorization of schools by standards on the basis of inspection is not objective; 5) in respect of instructional work of different subjects, emphasis is on reading and questions, to the neglect of teaching methods and supervision by the head of the school. For a systematic and scientific school inspection, the inspector should: 1) assist teachers in planning effective instruction to solve students' difficulties; 2) involve teachers in improving the inspection methods;

3) keep in touch with training and research institutes and Extension Service Departments; 4) help in fostering school-community relationship; 5) assist teachers in increasing their professional knowledge and in evaluating their own work. The need for improving the economic status of inspectors and orienting the inspecting staff in the democratic way of supervision has been stressed.

396 NATIONAL INSTITUTE OF EDUCATION, Delhi: Evaluative criteria for inspection and supervision of secondary schools (NIE-HEW Project 004). Indian Educational Review 1968, 3(1), 156-61. 4 ref.

The three major aspects of the project were: 1) conducting sample analyses and surveys of current inspection and supervision practices in different parts of the country; 2) development of a set of evaluative criteria and an evaluation instrument; 3) refinement of the criteria and the instrument through experimental try-outs. Six major objectives of education as formulated by various commissions were adopted for the purpose. Since the objectives are complex, each was further split up in terms of desired outcomes and a further analysis of these outcomes was done by relating each outcome under the different objectives with certain aspects of the school which help in realizing the outcome. They are: 1) the school plant; 2) school funds and finance; 3) school administration and staff; 4) instructional materials and services; 5) co-curricular activities; 6) school and community relations; 7) teaching of subjects. Finally the guide points for each aspect of the school under different objectives and different outcomes were prepared and the criteria and instrument were developed in a series of workshops and meetings with educationists. The criteria and the instrument thus prepared were experimentally tried out in 200 secondary schools of 11 states for refining the instrument and the manual of directions and also for ascertaining the reliability, validity and practicability. The instrument was found to be a reliable and valid tool. The conference of the Directors of Education/Directors of Public Instruction of the different States and Union Territories held at Madras to discuss the possibility of implementation of this instrument and the resultant administrative and financial implications, made various recommendations.

INSTRUCTIONAL MATERIAL AND AIDS

397. AHLUWALIA S L: School museum. Bulletin of the West Bengal Headmasters' Association 1968, 17(1), 21-4.

School museums serve as a vital source of instructional material (audio-visual) readily available for integration into the curriculum. Study kit which is a general, teaching-learning device, consisting of a correlated assemblage of audio-visual aids pertaining to a particular theme, provides a mobile element to the school museum. One such kit developed by the Department of Audio-Visual Education, NCERT, aims to: 1) provide a comprehensive view of India in a correlated pictorial form consisting of audio-visual aids such as charts, maps, specimens, films pertaining to various aspects of India; 2) present stimulating material for further study that will revitalise and enrich the school curriculum; 3) provide a wide variety of teaching materials on India in general; 4) develop ultimately a basic awareness about different historical, cultural, social, economic, and other aspects of India; 5) highlight the perpetual unity in the cultural diversity of India and foster national and emotional integration. The uses of the kit are: 1) it can be conveniently displayed; 2) development of individual assignments related to the contents of the kit is possible. The contents of the kit can be issued to different students in rotation; 3) similar kits on different topics can be assembled as a result of pupil-teacher participation.

398 MUKHERJEE C: Textbooks in regional languages. Searchlight 29 March 1968. p.4, cols. 4-6; p.5, cols. 7-8. 2760 words.

A procedure has been suggested for the selection and preparation of textbooks in Indian languages. The teachers of all universities in a region should form subject groups and prepare detailed break up of the syllabus of the universities. Each teacher should be assigned a topic for writing a monograph. Each draft monograph should be discussed in students' seminars or before other members of the department concerned. Within a given time these monographs in the form of series of articles should be published, one for each subject, to be sponsored by the universities specifically for this purpose. When the entire series is published an editorial board should be set up to make further sifting of the articles and to recommend their publication in the form of books. The advantage of publishing individual university serials and later selecting the best article would be: 1) larger number of teachers would have the opportunity of showing their performance to a large number of students of various universities; 2) students would also have the benefit of drawing on the experience of several teachers; 3) the editorial board would have, at its disposal, a larger number of papers on similar topics; 4) a part of the journal may also be devoted for publication of original studies; 5) the cost of production would be low.

399 ZANT J H: Practical method for initiating a modern program in mathematics in the schools. Mathematics Education 1968, 2(1), 2-6.

A review has been made of the efforts in USA for preparing textual material in school mathematics and the following suggestions have been made for introduction of a revised mathematics programme in Indian schools: 1) starting the programme in some selected schools; 2) initiating modern programme with prepared teaching material like SMSG materials available for grades I through 12. In the beginning a combination of SMSG and traditional methods may be used; 3) involving the leaders, mathematicians, mathematics educators, supervisory staff and teachers in improvement programmes of mathematics teaching in schools; 3) subsequent revision and rewriting of the existing teaching material to fit in the Indian conditions.

LANGUAGE PROBLEM

400 NARASIMHACHARI S T: Permanent solution to the language issue. Hindu (Weekly Magazine) 21 January 1968, p.iv, cols. 3-5.

The following suggestions have been made: 1) the Constitution should be amended to make all the 14 national languages official languages of India specifying their fields of activity in the respective regions; 2) two modern Indian languages must be taught compulsorily to all students and every candidate to the Central Services must take an examination in both; 3) steps must be taken to develop Hindi as a composite language of India even if it is slightly different from the present form as used in the Hindi-speaking States; 4) the South should not give up the intensive study of English even if it is not the official language of India.

401 SHAH A B, Ed: Great debate - language controversy and university education. Bombay, Lalvani Publishing House, 1968, xvi, 211p.

The book in four parts presents the controversy sparked off by the language policy outlined by the Union Education Minister (T.Sen) in his Lok Sabha statement of 19th July 1967 (See Vol. 2, No.1, Abstract No. A39). Part I presents the statement and his address at the Vice Chancellors' Conference (1967) (See Vol. 2, No. 3 Abstract No.403) and also the statement adopted at the Vice-Chancellors' Conference (See Vol.1, No. 1, Abstract No. A33). Part II contains 16 articles representing the viewpoints of some educationists, politicians and journalists including C. Rajagopalachari, Nirad C. Chaudhary, V.V. John, and A.B. Shah. Part III contains the letter of resignation of M.C. Chagla from the Union Cabinet (See Vol. 2, No. 2, Abstract No. A48) and the reply of the Prime Minister. The chapter also includes a report of the Times of India interview with Chagla. Part 4 is a collection of editorial comments of several newspapers, resolutions of the Medical Council of India, the Council of the Institution of Engineers (India), and the Bar Council of India favouring the retention of English in technical courses. The Weekend Review interview with C.K. Daphtary (Attorney-General) and 11 letters published in different newspapers are also included in this chapter. The appendix gives the full text of the recommendations of the Education Commission on the study of languages.

MEDIUM OF INSTRUCTION

402 AIRAN J W: Role of language in the study of natural sciences in India. New Concepts 1968, 2(4), 135-7.

Language is not a barrier in the study of natural sciences since interpretation of natural phenomena can be stated in terms of plain proposition and hence can be translated into any language. Introduction of mother tongue as the medium of instruction in the study of natural sciences has, therefore, been recommended on the following grounds: 1) experience shows that at the secondary school level, such change-over has proved satisfactory. Student's understanding of the subject has been deeper; 2) quality of textbooks written for this purpose has steadily improved; 3) since education is related to national development it is necessary to teach natural sciences and technology to the largest number of young population. To enable the rural students to acquire such knowledge, regional language should be used to improve their education in natural sciences.

403 INDIA. MINISTER OF EDUCATION, 1967- (T. Sen): Address to the Vice-Chancellors Conference [on 11 September 1967] - Medium of education. (In Shah A B, Ed. Great debate - language controversy and university education. Bombay, Lalvani Publishing House, 1968. 6-15).

Changing over to regional languages as media of instruction is not a new proposal. The plans of changing over should however be guided by certain basic considerations: 1) an elastic and gradual approach; 2) strengthening the study of English, because it gives the students direct access to the growing knowledge of the world; 3) evolving a large-scale programme for the production of literature in all Indian languages. However, the change-over should not be delayed for the production of the literature; 4) cutting across linguistic barriers in higher education. In order to facilitate the mobility of teachers and students in the new set-up, the following suggestions have been made: 1) every teacher should be expected to be bilingual, i.e. he should be able to teach in his mother tongue, and at his option, either in English or in Hindi; 2) every student should be expected to use his mother tongue or regional language as medium and should be able to read books and follow lectures both in English and Hindi; 3) special programme should be developed in the Central sector to encourage the inter-region movement of teachers and students; 4) introduction of special intensive courses of short duration, using the latest teaching techniques, for students to learn regional languages other than their mother tongue. Adoption of this new policy would result in: 1) the integration between intelligentsia and the masses in the same linguistic region through the use of mother tongue; and 2) the integration of the intelligentsia from different linguistic regions through the use of the dual link of English and Hindi.

404 SHAH A B: Indian languages as media of higher education. Quest 1968, No.56, 9-21. 11 ref.

A strong plea has been made for the continuation of English as the language of the higher levels of national life. Hindi has no role in this respect. The following are some of the points set forth in this context: 1) no time limit should be fixed for changing the medium of instruction; 2) translation work cannot cope up with rapid multiplication of literature in English; 3) choice of the medium should not weaken the integrity of the intellectual elite who need a common language (evidently English) for exchange of experience; 4) provision should be made to fulfil the legitimate aspirations of students who wish to study through English medium. However, the alleged advantages of English in matters of employment can be neutralized through administrative measures; 5) Similar provision should also be made for Indian languages. Thus, eventually there would be two types of higher education: i) using regional language as the medium of education in institutions for first degree aspirants; ii) using English in institutions meant for talented students. Equalization of opportunities should be ensured through liberal financial and academic incentives to talented students from backward communities and opening new institutions of all-India character in all States.

405 MATHUR Y B: Moral and religious education in India (under the Company and the Crown). Indian Educational Review 1968, 3(1), 137-47. 30 ref.

Traces the history of moral and religious education in India from 1854 to 1946. The following trends are discernible: 1) following a principle of non-interference regarding religious instruction in privately managed schools and adopting an exclusively secular policy in public schools; 2) introduction of religious and moral education by the Mysore State in 1908-9 followed by other princely States; 3) in spite of discussions at different levels since 1911 the Government policy remained unchanged on two grounds: (a) interest in religious and moral education had already died down; and (b) the question could be settled only after deciding the policy on general education; 4) mobilization of public opinion, particularly that of the Mohammedan community, against secular education, because it leads to the decay of domestic and national traditions and the growth of a spirit of indiscipline and even impiety; 5) a definite change noticeable in the Government attitude, particularly in view of the rapid spread of Bolshevistic doctrines after the First World War; emphasizing the need for religious and moral education with the hope that it could counteract such a trend (Home education proceedings, No.18 dated December 19, 1919). The Government, however, emphasized the importance of moral education, which meant gradual inculcation of the principles of right conduct through indirect means, as distinguished from moral instruction.

406 PAL R: Moral and religious education. Indian Education 1968, 7(4), 32-7.

The two possible arguments against the introduction of religious education in public institutions, viz., that religion is not only other-wordly but sectarian, are not tenable. Religious education helps a programme of active and honest services to the nation and stresses certain fundamental qualities of character such as honesty and truthfulness. The basic teachings of different religions should be made the core of religious instruction in schools and at the same time a spirit of reverence for other religions should also be inculcated in students. The two main issues underlying a universally acceptable curriculum of religious instruction are: respect for all faiths and the recognition of their possible limitations. The need for stability and progress on the economic front and restoration of peace on the political front has been stressed for imparting real moral instruction in schools.

PHYSICAL EDUCATION

407 **DAS N:** Our students - their poor health and compulsory physical education. Bulletin of the West Bengal Headmasters' Association 1968, 17(1), 8-12.

The following suggestions have been made to overcome the problems of introducing compulsory physical education in West Bengal schools: (A) Dearth of physical education teachers - 1) providing in-service training of three months' duration to untrained teachers; 2) arranging three months' intensive training programme for school-leaving students having proficiency in sports and games, and appointing them as junior physical teachers to be subsequently absorbed in higher posts after further training. (B) Want of play-ground and gymnasium - in the city, using the parks, play-grounds and the less busy roads and lanes near the school for mass drill; 2) use of courtyards or open space in schools as open-air gymnasium; 3) seeking cooperation of local sports club and gymnasium. (C) Adjustment of school programme - 1) reducing the load of general classes at least by four periods; 2) adding at least four periods (twice a week) for physical education; 3) making participation in physical activities in the afternoons compulsory. (D) Paucity of funds - to start with, physical education could be made compulsory at least in five schools in every district. Full implementation of the scheme should, however, be made during the Fifth Five Year Plan.

408 **WAKHARKAR D G:** Manual of physical education. Bombay, Pearl Publications, 1967. ix, 254p.

The first seven chapters discuss the following topics: 1) principles underlying physical education and its relationship to other schemes of youth welfare in India; 2) fundamentals of leadership; 3) importance of developing a curriculum on the basis of modern concepts; 4) need for instituting a system of examination in physical education; 5) administration of physical education and the specific nature of supervisory duties; and 6) characteristics and techniques of modern supervision based on democratic principles. Chapter 8 suggests a supervisory pattern which may be adopted in India for the more efficient implementation of physical education schemes. Chapter 9 reviews the state of physical education in India and its future prospect. The appendices give the following: 1) outline of a syllabus; 2) rules for recognition of courses by the Union Ministry of Education; 3) standards of facilities and equipment for schools; 4) rules for implementation of National Fitness Corps Programme; 5) scoring tables for tests; 6) standards in the National Physical Efficiency Tests; 7) form of report on supervision.

409 **ACHAYA S, RAO K N:** Requirements of medical teachers - the magnitude of the problem. Indian Journal of Medical Education, 1968, 7(1-2) 27-63.

The following suggestions have been made to overcome the acute shortage of medical teachers: 1) introduction of a three-year course leading to a Master's degree in non-medical subjects like physiology, biochemistry and microbiology for non-medical graduates; 2) two-year course for graduates in medicine leading to the degree of M.D. or M.S.; 3) provision for an honours degree in science in these subjects for medical students who can take this course after passing the pre-clinical subjects and then continue the medical course; 4) institution of B.Sc. in human biology. Subsequently candidates may either take M.Sc. examination or M.B.B.S. examination after undergoing clinical training; 5) giving teaching assignments to well-qualified doctors attached to large hospitals; 6) utilizing the services of pool officers placed in hospitals and medical colleges by the Council of Scientific and Industrial Research; 7) organizing orientation courses for the existing teachers; 8) improving the service conditions of medical teachers; 9) extending the retirement age of teachers to 65 years. The appendix gives the following: 1) 5 diagrams showing different aspects of shortage of teaching staff; 2) minutes of the meeting (7th October 1964) of the Committee appointed by the Central Council of Health to consider postgraduate medical qualifications, 3) report of the meeting of the UGC Committee to review the present position of non-clinical staff; 4) comparative statement of the functioning of 4 Postgraduate Institutes of Basic Medical Sciences; 5) list of medical colleges; 6) statistical tables relating to enrolment, number of teachers, and examination results.

410 **ASIAN SEMINAR ON RESEARCH IN EDUCATIONAL PLANNING, NEW DELHI, DECEMBER 1967:** Final report. New Delhi, Asian Institute of Educational Planning and Administration, 1968. 24p.

The implications of research in the following two themes were analysed for preparing appropriate research designs: 1) raising productivity and reducing costs in establishing educational system in Asia; 2) adjusting popular demand for education to the practical needs of national development. For the first theme the areas considered were: 1) school construction and location, equipment and teaching material; 2) teacher utilization and teacher training; 3) administration; and 4) wastage. Some of the suggested research projects were: 1) optimum size in school and school building; 2) optimum utilization of fully trained personnel for minimizing teacher costs and maximizing educational output; 3) evaluative studies of correspondence, part-time, and in-service courses based on assessment of costs and effectiveness of different measures; 4) comparative efficiency of centralized and decentralized systems of administration; 5) relative effectiveness of different combinations of supervisory staff; 6) characteristics of successful headmasters; 7) determining the optimum length of the school day and/or year; 8) case studies on practices which have been successful in reducing wastage arising from non-promotion and early school leaving; 9) relative importance of various educational factors in reducing wastage; 10) experimental study in practices designed to reduce drop-outs. For the second theme the following topics have been suggested: 1) demand for different types, levels and standards of education by different economic and social status groups; 2) factors influencing such demands; 3) scale of preferences of parents and students for different levels, types and quality of education as compared to other services; 4) analysis of knowledge, skills, and attitudes required for different sectors of economy for national development; 5) occupational and social requirements of secondary and technical school leavers with a view to ensuring a closer relationship between education and community needs at different levels; 6) sociological study of the aspirations of students and parents to determine the factors that may have to be adjusted to balance the demand and need; 7) comparative study of the changing balance between manpower requirement pyramid and education pyramid and a salary structure in a developing community; 8) influence of examinations and other selection procedures on student flows at all levels; 9) designing of educational structures to ensure maximum flexibility and prevent imbalance between popular demand for education and the needs of national development.

411 BAGAI S B: Implications of social demand approach to educational planning - a case study of India. Manpower Journal 1968, 3(4), 43-82.

A model has been presented to show that the social demand approach and the manpower forecasting approach would give the same result, provided that 1) the demand for, and supply of, educated manpower at all levels are balanced; 2) the economy and the labour market are perfectly competitive; 3) there is no subsidy at any level of education; and 4) no subsidy at any level of education; and 4) no person would want education for its own sake. But if the demand for education increases for adopting social demand approach to planning, through liberal scholarship schemes and subsidizing the cost of education without corresponding increase in the demand in the labour market, it would further aggravate the unstable market, lower the educational return, increase the unemployment of the higher level educated manpower, increase State expenditure on education, and deteriorate standards of education. An analysis of the Indian situation shows that all these factors prevail in India. Manpower forecasting approach coupled with the neccessary correction for consumption co-efficient seems to be more appropriate, when education is heavily subsidized. The following suggestions have been made: 1) determining targets for second and third levels of education on the basis of realistic assessment of manpower requirements; 2) regulating entrance to these levels by a rigid selection test; 3) reviewing the scholarship programme; 4) adoption of a special employment programme for those who could not be admitted to the second and third level courses.

412 JAGATHPATHI G: Manpower development and the national context. Manpower Journal 1968, 3(4), 9-28.

The manpower development process of a country should be based on the distinctive features of its educational, training, and economic systems. Demographic, cultural, and political factors, which influence the development process, are also different. International experience provides only broad guidelines and better modern techniques in education, training, personnel selection etc. It cannot provide reliable manpower indices, plans and policies. The quantification problem has also to be dealt with on a distinctive national basis. In the developing countries that are following central planning on a substantial scale, two factors viz. limited resources and acceleration of growth tend to centralize the approach to manpower development. However, such centralization should also be combined with a considerable degree of decentralization both in manpower administration and in employment-education-training coordination.

413 NATIONAL SEMINAR ON EDUCATIONAL PLANNING AND ADMINISTRATION, SRINAGAR, JUNE 12-25, 1967: Final Report. New Delhi, Asian Institute of Educational Planning and Administration, 1967. 51p.

The discussion of the theme was divided into the following 10 heads against which some important points that emerged from the discussions are noted: 1) review of the difficulties experienced during the last three Plans due to imperfect co-ordination between policy, planning, and administration; 2) Centre-State relationships - (a) Centre gave no idea of the framework or resources for working out State Plans;

(b) Centre could not effect inter-State co-ordination; 3) improving the planning and implementing machinery - (a) preparation of total educational plans at four levels viz. national, State, district and institutional; (b) certain administrative and financial changes to facilitate planning at institutional, district and State levels, (c) adequate training for every teacher, headmaster and inspecting officer; (d) a comparative study of administrative patterns and practices in different States (list of problems given); 5) educational planning vis-a-vis socio-economic planning - the problem was examined under the following heads: (i) content of technical courses to suit manpower requirements; (ii) location of centres of technical studies; (iii) ensuring reasonable forecasts of technical manpower needs; (iv) orienting agricultural education to enable students to manage their own farms; 6) unit cost in educational planning (a) determination of unit cost for correct expenditure forecasting and for adjusting the unit cost in case of changes in priority, without affecting the overall cost; (b) project-oriented budget to assess performance in terms of qualitative, quantitative and financial targets; 7) statistics for educational planning - setting up suitable machinery for collection, compilation and analysis of statistical data; 8) coordination of sectoral plans - (a) appointment of a Deputy Director of Education to coordinate the activities of the public and private sectors, and other government departments; 9) project formulation and pilot projects - (a) time, financial and personnel phasing were considered as important features, (b) pilot projects as distinguished from experimental projects were considered necessary in the planning process; 10) financial procedures - apart from the points suggested in item (4), it was stressed that once a scheme has been examined and approved by the Finance Department, no further reference to the Department is necessary during implementation.

414 NATIONAL SEMINAR ON NATIONAL POLICY ON EDUCATION, HYDERABAD, NOVEMBER 7, 1967: Statement on national policy on education. Prachya Prabha 1967, 39(12), 33-5.

The following are the salient features of the statement adopted at the Seminar organized by the All-India Federation of Educational Associations: 1) education should create national consciousness, strengthen democracy, promote establishment of a socialistic society and foster international understanding; 2) equality of educational opportunity should be afforded to every one; 3) scientific outlook and modernization of the society should be promoted; 4) all national languages which would be the media of education at all levels should be developed, and legitimate facilities should be given to linguistic minorities; 5) teachers should have full academic freedom, a pride of place in the social set-up and the right to stand for election to any public office;

6) teacher organizations should be actively associated with educational planning and administration; 7) investment in education should be given importance in national development plans; 8) education should be included in the concurrent list and the constitution amended accordingly.

415 PATTABHIRAM M: District-level plan for education. Hindu 26 March 1968, p.6, cols.4-7. 1440 words.

Presents a report of the Conference of State Education Secretaries which discussed the strategy to be adopted in the Fourth Plan. The following are some of the salient features: 1) taking the district as base unit for educational planning; 2) providing free primary education up to class V beyond which the matter should be left to the financial resources of the State; 3) all States should try to find their own resources for educational development; 4) paying more attention to backward areas and to the backward sections of the community in respect of elementary education; 5) concentrating efforts on the reduction of wastage and stagnation; 6) laying emphasis on linking educational expansion to manpower requirements and employment opportunities; 7) ensuring close collaboration between UGC and State education departments; 8) assigning the job of writing textbooks only to qualified persons. The Union Education Minister outlined the following four-point programme of book production: 1) books should be so written as to build up the reading habits of children as well as to promote national integration; 2) an autonomous corporate body should be set up in each State in collaboration with NCERT for the production of textbooks; 3) a concerted programme should be adopted for the production of textbooks in English and modern Indian languages at the university stage; 4) textbook libraries should be set up in all institutions.

416 RAMASWAMI E K: Problem of unemployed engineers. Hindu 15 February 1968, p.6, cols.4-7. 1320 words.

Although about 50% of the diploma holders and graduate engineers are still unemployed, no attempt is being made to reduce the output of engineering personnel. The reasons for acute unemployment are: 1) economic recession; 2) temporary closure, lay off and retrenchment in private sector industries; 3) labour unrest; and 4) completion of different Plan projects of State Governments. The following suggestions have been made to reduce unemployment among engineers: 1) limited admission in engineering colleges; 2) increased recruitment in the armed forces; 3) compelling private sector industries, including contractors and construction agencies, to appoint qualified engineering personnel; 4) encouraging engineers to accept jobs in neighbouring countries; 5) appointment of engineering apprentices in different power projects; 6) providing financial assistance to unemployed engineers to set up small-scale industries; 7) gradual replacement of non-technical personnel in technical jobs by qualified engineers; 8) introduction of technical subjects in all-India administrative services and allied examinations. In spite of unemployment problem there is still demand for engineering course.

417 RAY K: Scientific manpower - review of characteristics of stock and problems of utilization. Manpower Journal 1968, 3(4), 29-32.

Planning with regard to graduates and postgraduates in basic science has not received appropriate attention. A survey of the existing stock of scientific personnel reveals the following points: 1) pre-dominance of physical group (73%) with small proportion of biological (24%) and geological (3%) graduates; 2) prevalence of high degree of unemployment (16%) and non-technical employment (40%) among science graduates; 3) amongst the agricultural graduates the unemployment and employment in non-technical vocations accounted for 4% and 5% respectively in 1961; 4) less than 10% of the postgraduate scientists are in the industrial employment resulting in overcrowding (78%) in research departments and educational institutions; 5) specifically, Doctorate degree holders have very low industrial employment. This may be attributed to two reasons: (a) Indian industries are mostly based on foreign know-how; (b) lack of competition in the indigenous sector; 6) stock and out-turn of scientific personnel also show lopsidedness. Mathematicians whose employment potential is low, form the largest group while out-turn of geologists and geophysicists is extremely low; 7) high degree of misuse of qualifications and skills is noticed in the case of mathematicians (25.2%) and statisticians (23.9%); 8) highest degree of unemployment is among geologists and geophysicists (10.6%). The following suggestions have been made for the proper utilization of scientific personnel: 1) shift of emphasis to industrial employment; 2) establishment of R & D departments in large industries; 3) greater participation of scientists in mineral, agricultural, forest and other resources survey and assessment; 4) filling up of vacant scientific posts; 5) selectively attracting the scientific personnel engaged in non-technical jobs into teaching and technical jobs.

418 SHIVA RAO B: Time for radical changes in educational policies. Hindu [Independence Day Supplement] 26 January 1968, p.2, cols.2-4. 1800 words.

The following deficiencies in the educational policies in respect of higher education have been pointed out: 1) inadequate allocation of funds for research; 2) non-implementation, due to lack of funds, of various reforms suggested to prevent student unrest; 3) inadequate facilities and equipment and lack of lack of proper encouragement of junior scientists, thus causing brain drain; 4) allocating larger funds for translation of books from English into Hindi and other regional languages in preference to essential educational reforms and research facilties. It has further been suggested that after the secondary stage provision should be made for the widest possible diversification of courses. A network of agricultural schools, polytechnics and other types of schools like nursing schools and catering schools should be set up. In these courses mother tongue can be conveniently used as medium, although a minimum knowledge of English would be desirable. However, knowledge of English should be considered compulsory for admission into universities.

PROGRAMMED INSTRUCTION

419 MITRA S K: Programmed learning of science and teaching. IAPL Newsletter 1968, 3(1), 3-6.

A plea has been made for the adoption of programmed learning for the improvement of standards of teaching in India. It does not differ in principle from lesson planning, but greatly differs in the methodology. Unlike lesson planning, programmed learning is based on observations and the behavioural outcome of a learner in a teaching-learning situation. In this respect, it is necessary to develop an educational technology based on the belief that human behaviour and particularly the behaviour of a student in a learning situation can be controlled. Although it is in an experimental stago, the technique has a potential for the development of education as a science, if teaching is viewed as the input and learning as the output.

420 MULLICK S P, KULKARNI S S: Correspondence course and programmed learning approach. Education & Psychology Review 1968, 8(1), 35-43.

An experiment was conducted to investigate the relative values of programmed and non-programmed lessons in correspondence courses. The topic of the lesson was Rank Correlation and the sample consisted of 128 non-science/non-mathematics students of B.Ed. correspondence course of the Central Institute of Education, Delhi. The control group was sent conventional lesson, while the experimental group received the programmed lesson. Both the groups (44 in the control, and 42 in the experimental group) were later administered a post-test. The results were: 1) the arithmetic mean and standard deviations of scores of control group were 18.65 and 12.8 respectively, while the corresponding figures for the experimental group were 26.54 and 12.05. The mean of the experimental group is significantly higher than that of the control group at .01 level; 2) the frequency polygons of scores obtained by the two groups on post-test show that the post-test was easy for the experimental group; 3) 48% students in the control group and 33% students in the experimental group failed. The percentage of failures among those students who returned the response sheet attached with the Programme was 19% only; 4) 9% students in the control group and 26% in the experimental group obtained over 75% marks; 5) 62.5% of the students who did not return the response sheets failed; 6) the students felt that programmed learning was easier and interesting, and that it enhanced the mastery over the subject.

421 Recent studies on programmed learning. IAPL Newsletter 1968, 3(1), 12-28.

The following studies have been recorded: 1) Shah M S: A programme of solving equations - The group taught by the teacher with the help of programmed instruction did not do better than the group taught by programmed instruction alone; 2) Krishnamurty G B: Students' attitude towards programmed learning - The majority of medical students favoured programmed learning; 3) Mullick S P: Experiment on programmed learning lesson in a correspondence course - Only 33% of students of the experimental group failed as against 48% in the control group. An overwhelming majority of students favoured the technique; 4) Sharma J H: Construction of a programmed unit on 'sets' for class IX students - Programmed unit was found as effective as the lecture method of teaching the same unit; 5) Gupta N C: Adaptation of programmed learning material developed abroad - An experiment with a programme on Force in physics showed that some adaptations are necessary to suit Indian conditions; 6) Sharma M N: A comparative study of outcome of teaching of algebra by conventional class room method and method of programmed instruction - 60% of the students in the experimental group secured 100% in the test whereas only 20% of the control group could reach that standard; 7) Desai U R: Programmed learning versus traditional approach in the teaching of Gujarati in standard IX - The programmed approach was more effective for students ranging from high IQs to low IQs; 8) Sharma R A: Study of achievement in geography with programmed instruction - The experimental group improved its pre-test score by 23.10 points as against 9.12 of the conventional group; 9) Dewan S S: Programmed learning through television - The experimental group showed superiority over the conventional TV lesson group; 10) Kulkarni P V, Yadev M S: comparative study of teaching by different methods of programming of different levels of pupils - No definite conclusion could be drawn.

422 SHARMA M M: Group programme a new approach to programmed instruction. Educational Review 1968, 74(2), 27-30.

A group programme, cheaper than programmed instruction, allows pupil-pupil interaction, keeps students motivated, and does not require regular supervision by the teacher. Members of a group work together to discover the generalization that lies behind a particular operation. The subject matter is arranged in logical units and instead of breaking it up into small frames, sufficient material is presented for discussion at one stretch. A set of instructions guides the direction of the discussion. Pictograms are also used to make the information clear. A common discussion takes place on the correctness of the results of group discussions, when all the groups reached their own conclusions. The learning steps are: 1) acquisition of new information; 2) transformation; and 3) confirmation. The major advantages of this method are: 1) suitable for teaching subjects where reasoning and critical thinking are needed; 2) students remain active and motivated, while in programmed instruction a series of monotonous small steps becomes boring; 3) students get chances to interact with peer groups.

RURAL EDUCATION

423 CHOPRA S L: Educational needs of rural India. Kurukshetra 1968, 16(6), 12-15.

The suggestions encompass seven areas: primary and secondary education, agricultural polytechnics, co-curricular activities, training in co-operation, and social education. The following are some of the major points: 1) opening of new schools and the improvement of the existing ones; 2) giving some orientation to agriculture as an integral part of general education in schools; 3) improving the agricultural extension activities by: (a) training village level workers in fields like soil conservation, use of agricultural implements, plant protection; (b) establishing on commercial scale farms capable of adopting improved methods of agriculture and also of imparting part-time agricultural education to farmers, and (c) training skilled workers and middle level technicians for the supporting services needed by the farmer; 4) setting up youth clubs associated with schools for organizing co-curricular activities; 5) preparation of pamphlets and educational films on various aspects of co-operation and setting up schools and savings co-operatives; 6) organizing specially devisedprogrammes: (a) for adults in the context of local conditions, and (b) for liquidating illiteracy among rural women.

424 **NAIK** J P: Role and problems of private enterprise in education [Speech at the ISS-FERS Consultation of Principals of Christian Colleges, Tambaram, Madras 30 December 1966 - 5 January 1967]. (In Christian college and national development. Madras, Christian Literature Society, 1967, 123-35).

The motivations of private enterprise in India were: 1) public demand for secondary and higher education; 2) concept of religious, academic and political freedom; 3) spirit of service to society - religious, cultural or political. Rapid expansion of secondary and higher education and exploitation of the liberal grants-in-aid policy resulted in the growth of institutions with wrong motivation. Many administrative problems cropped up due to the following factors: 1) increasing dependence of private schools on Government aid and the increasing responsibility of the State to provide education; 2) misapplication of the idea of egalitarianism or equality by granting aids on the basis equality to all without reference to quality; 3) subjecting the grants-in-aid rules to procedural complexities with the object of controlling private institutions. Continuance and expansion of private schools have been urged as against the growing demand for nationalization because: 1) healthy criticism of official policies, essential for proper development of education, can be made only by private institutions; 2) chances of developing a climate of dedication and hard work and creating proper motivation, freedom and innovation are brighter in the private sector. The Education Commission's recommendation for revision of the grant-in-aid codes based on the following three principles has been discussed: a) discriminating policy on the basis of quality; b) good institutions need more assistance and less control; c) simplification of the present methods of grant-in-aid. The special role of Christian education lies in 1) brining about the synthesis of religion and science; 2) providing India with large number of English teachers; 3) developing the spirit of service and commitment.

425 **SAXENA** R S: Partnership between government and voluntary enterprises in the field of secondary education. Christian Education 1967, 17(4), 86-9.

Better performance of schools run on voluntary enterprises may be attributed to: 1) enthusiasm of the organizers; 2) hard work to attract public attention and Government recognition; 3) cooperation of eminent educationists who readily agree to work in such schools; and 4) equality of opportunity to students. The problems faced by such schools are: 1) reduction in voluntary donations due to rising costs; 2) increasing dependence on public funds, resulting in State interference affecting academic autonomy, planning and execution of the plans; 3) teacher problems relating to service conditions, mode of appointment etc. The advantages of State-controlled schools, however, are: 1) efficient management; 2) greater security to teachers. Since the government shares about 98% expenditure on secondary school, it should have its own schools. Only a few voluntary schools provide better education, while most of them aim at some personal gain. A plea has therefore been made to evolve a characteristic pattern of partnership between government and voluntary enterprises such that the standard of privately managed schools are raised to the level of government schools.

SCIENCE EDUCATION

426 NATIONAL COUNCIL OF SCIENCE EDUCATION, DELHI: Science and mathematics education projects of the National Council of Science Education. Mathematics Seminar 1968, 4(4), 177-8.

The Council constituted in 1966 by the Union Ministry of Education endeavours to develop a programme for improving science education and coordinating the activities necessary to implement it. The types of projects for which the Council offers financial assistance are: A Institutes programme - 1) Summer Science Institutes which may be: (a) sequential, (b) unitary, and (c) special, concerning a specific topic open to participants without geographic restriction; 2) Winter Science Institutes; 3) Academic-year residential institutes, usually involving fewer participants in the pursuit of a specific programme of advanced study designed to improve their teaching competence; 4) Academic-year in-service institutes. B. Development of instructional material. C. Co-operative university-school or college-school project involving development and support of school system. D. College development projects to assist individual university departments to improve their undergraduate science teaching, and through co-operative effort to raise the standard of teaching of science in affiliating and constituent colleges. E. Programme development and special projects like special conferences and seminars, distribution of books to small pilot groups, etc.

SOCIAL EDUCATION

427 JAIN S C: Study and orientation in community development and Panchayati Raj. (In his Community development and Panchayati Raj. Bombay, Allied Publishers, 1967. 495-512).

Reviews the system of training of Community Development (C.D) personnel. The training and courses are as follows: A. Block Development Officers (BDO) - the three main characteristics are: 1) a composite team of participants; 2) syndicate system of studies; 3) Panchayat system for managing students' affairs. Integration of the curriculum with the courses of schools of administration for State Civil Service and the Indian Administrative Service personnel, has been suggested to achieve economy and provide better instruction. B. Social Education Organizer (SEO) - the duration of training is six months. In view of the proposed closure of the training centres for SEO's, the strengthening of specilization group on 'social education' in teachers training colleges or other professional schools of social work and post-graduate departments of rural institutes, has been urged. C. Village Level Workers (VLW) - the theoretical course consists of a lecture course and extension course. The practicals include field work and training in the use of audio-visual aids. Providing opportunities to VLW's for higher education has been suggested. D. Extension Officers - they are trained by the departments of specialization concerned. E. Higher level personnel - Study and orientation for personnel such as representatives of the people in legislatures, Parliament, and local self-government bodies; university teachers and other officials are trained at the Orientation and Study centres and also in National Institute of Community Development. In-service training programmes for field personnel, administrators, technicians are also organized. Blending of the two approaches viz., trainee-centred and subject-matter-centred, has been suggested for re-orientation of the training programme of millions of non-officials like panchas, sarpanchas, pradhans and pramukhs.

SPECIAL EDUCATION

428 HEGARTY I E: Pilot speech survey of school children in India. Indian Journal of Otolaryngology 1968, 20(1), 3-6.

The purposes of the survey conducted by the Rehabilitation unit in Audiology and Speech Pathology of the Otolaryngology Department, All India Institute of Medical Sciences (AIIMS) were: 1) to determine the incidence of communication disorders among children requiring specialized services; and 2) to demonstrate a methodology useful for similar studies. A total of 322 children (preparatory KG stage through 7th stage including the preparatory class for hearing-impaired children) of the B.R. Mehta Vidya Bhavan, New Delhi was tested. In an orientation meeting with classroom teachers, each major speech problem was described and imitated samples of various handicaps were demonstrated. The observation forms used for each pupil were explained and the articulation tests in English and Hindi were given with a period of ear training on the consonant sounds in each language. The major findings are: 1) 22 had significant communication disorders as follows: voice disorders - 9, articulatory defect - 6, stuttering - 4, hearing loss (suspected) -3; No case having delayed speech, cerebral palsy, cleft palate/lip, was detected; 2) class-wise distribution is as follows: Preparatory-3, II-4, III-2, IV-6, V-4, VI-2, VII-1; Recommendations made were: 1) immediate further investigation and treatment in the Department of Otolaryngology, AIIMS; 2) as long-range planning, appointing a part-time speech and hearing clinician; 3) continuation of the oral programme for the preparatory class for hearing-impaired children of the school.

STUDENT INDISCIPLINE

429 MOOKHERJEE S: Why student unrest? Social Welfare 1968, 14(11), 13.

Presents an analysis of press reports for a period of 5 months when student unrest was most intense. State-wise distribution of 118 events is: U.P. 55%, Punjab (11%), Bihar (7%), Madhya Pradesh (7%), Andhra Pradesh (6%), Delhi (5%), West Bengal (3%) and Kashmir (2%). The data revealed a direct link between political instability and student unrest. Causes of 87 incidents were: 43% sympathetic in nature, 17% initiated by on-the-spot minor clashes between students and non-students and 60% matters pertaining to immediate interests of students. Out of 31 incidents, students of professional and non-professional courses were involved in 68% and 32% cases respectively. An analysis of the statements and comments of educationists, students leaders, police officials and politicians revealed the following causative factors: 1) political parties; 2) students disinterested in studies; 3) general deteriorating social and economic conditions; 4) ill-paid, ill-trained and uninspiring teachers; 5) diminishing influence of religion; 6) lack of extra-curricular activities and libraries. The suggested remedies were: 1) improvement in extra-curricular activities and personal relation with students; 2) appointment of vice-chancellors on the basis of academic distinction; 3) having advisory councils of teachers and students in each college; 4) giving recognition to unions; 5) nationalization of education.

430 SARKAR S N: Student unrest - an opinion survey with factual support. Indian Educational Review 1968, 3(1), 173-4.

A questionnaire containing 35 items covering the following three factors was administered to a sample of 400 respondents (100 each of students, teachers, guardians, and academic administrators): academic (7 items), socio-economic (16 items), administrative (12 items). The responses were scored on a Likert continuum with a five-point scale, and the scores were statistically treated. Each item was given weightage or rank on the basis of the mean score of the entire sample. The first five items in each factor on the basis of the responses are: 1) socio-economic field - (a) poor background of home discipline; (b) lack of adequate teacher-student rapport,

(c) political instigations; (d) lack of harmony among teachers; and (e) craze for leadership among students; 2) academic field - (a) activities of 'politician teachers'; (b) poor school discipline; (c) poor academic atmosphere in hostels; (d) disproportionate load on students; and (e) deterioration in the standard of examinations; 3) administrative field - (a) lack of adequate number of hostels; (b) unsatisfactory provision for recreational activities; (c) inefficient administration; (d) expansion of educational opportunities without corresponding employment prospects; and (e) inadequate provision of library-cum-reading rooms. Relative weightages were obtained for each of the items for the three factors and these findings were substantiated by factual data. For this purpose students' personal information sheets were used and the behaviour of 18 indisciplined students and 18 disciplined students was observed.

431 Second bad year for education /News item/. Hindustan Times 5 February 1968, p.1, cols.5-8; p.5, cols.1-8. Unquiet campus /Editorial/. Hindustan Times 6 February 1968, p.7, cols.1-2. 3095 words.

A State-wise survey of the disruption of the academic routine during 1967-68 reveals the following reasons for increasing student unrest within and without the campuses: 1) Madhya Pradesh - police firings, removal of a principal, location of a medical college, affiliation of Ayurvedic colleges and equating their degrees with the M.B.B.S., opening of M.A. classes, anti-English agitation; 2) Uttar Pradesh - strike by non-teaching staff for more pay and better service conditions, anti-English agitation, law students' demand for abolishing the three-year course; 3) West Bengal - teachers' agitations, general strikes mainly on political issues, and increase of tuition fees; 4) Rajasthan - anti-English agitation, lowering standards of gradations in examinations, condonation of shortage of attendance, and reimbursing of tuition fees for the period of closure of colleges. In Madhya Pradesh, Uttar Pradesh and West Bengal, political parties played leading roles. Maharashtra was the only State free from agitations. Fear of unemployment and frustration appear to be the basic causes of unrest. In the editorial, the students' involvement in non-academic issues and adoption of violent methods for solving their grievances, demand for removal of teachers and for lowering the educational standards have been assailed. However, a sympathetic attitude towards the unemployment problem, particularly of students of professional courses, has been urged.

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432 SHAH B V: Students' unrest - a sociological hypothesis. Journal of Education and Psychology 1968, 25(4), 283-90.

The ability of students and the socio-economic status of their parents are the two factors that influence the students' response and their efforts to enter and succeed in the educational competition. On the basis of these criteria, students may be classified into four broad groups: 1) high-status - high-ability; 2) high-status - low-ability; 3) low-status - high-ability; and 4) low-status - low-ability. An analysis of the 5 factors viz. (a) economic; (b) enrolment, syllabus and examination, (c) learning conditions; (d) living conditions; (e) leadership, causing student unrest would reveal a common point viz., the factors are likely to increase or decrease the relative chances of the students to get admission to a course of their own choice, of continuing in it or their chances to succeedin the educational competition, or to do better than others. How the four groups of students are likely to be impelled to behave in this situation has been hypothesized: 1) when costly education restricts the chances of admission and success, the less privileged groups act to equalize them with the privileged groups; 2) giving due consideration to merit in student selection reduces possibility of student unrest; 3) undue benefits to the privileged groups on the other hand cause student unrest; 4) admission of a large number of low-ability students is more likely to result in students' unrest; 5) same instructional programme for all compels the low-ability students to indulge in activities that reduce their chances of lagging behind.

STUDENT PROBLEMS

433 DAVE I, JAIN K C: Problems of secondary school pupils. Rajasthan Board Journal of Education 1968, 4(1A), 10-18.

The investigation related to 642 students of classes VIII, IX and X in the State of Rajasthan. A simple semi-projective device was used to elicit the felt problems of pupils in a free and spontaneous manner. The tool was administered in a group situation and the pupils were given 40 minutes to write down their responses. The data thus collected were analysed and the problems were classified into 5 categories: educational, personal, social, economic and vocational. The following remedial measures have been suggested: 1) introduction of at least the two basic services of guidance programmes, viz. individual inventory service and information service, in every secondary school; 2) of the 5146 problems analyzed, 3296 relate to the educational sphere, which indicates that all school teachers should cooperate in these initial guidance services, and pay personal attention to the individual needs of pupils; 3) improvement of school library services and seeking the help of existing extension centres in the district library service; 4) provision for regular games and other co-curricular activities; 5) small-group tutorial classes to facilitate individual teacher-pupil contact; 6) provision of minimum physical facilities and optimum utilization of existing facilities.

TEACHER EDUCATION

434 BUCH M B: Sevārat śikṣaṇ meṁ naī sujhī va abhyās (= Innovative practices in in-service education). [Hindi]. Naya Shikshak 1967, 10(2), 46-61.

Presents a survey of some of the less known but promising techniques developed by various extension centres in India: 1) educational pilgrimage involving group visits to some selected schools; 2) orientation programme for new headmaster in which emphasis is on special problems confronted by the new headmasters; 3) content courses of short term duration to improve the subject content knowledge of teachers of class XI; 4) a new follow-up method in which detailed report from teachers describing results of new teaching principles are obtained; 5) concept-approach technique in content courses of shorter duration; 6) direct experience in in-service education for teachers in the form of practical demonstration; 7) extension outpost centres for a group of schools established by M.B. Patel College of Education, Vallabh Vidyanagar which function throughout the year for providing solutions to school problems; another innovation was the school on wheels to make the schools realize common problems for solving them through joint efforts; 8) school adoption programme; 9) programme of mass contact of teachers for exchange of experi[illegible]ough group discussion; 10) development of nucleus schools [illegible] on the principles of co-operation; 11) formation of subject teachers' association; 12) group work as a class-room instructional approach; 13) involvement of college faculty in extension work; 14) headmasters' forums; 15) refresher training centres organized by the Department of Education, Rajasthan for imparting in-service education to primary school teachers; 16) voluntary school study council for the improvement of science education; 17) internship - two weeks' internship in one year for six teachers in a batch in University Experimental School attached to the Faculty of Education and Psychology, Baroda; 18) in-service education through correspondence.

435 BUCH M B, PALSANE, M N, Eds.: Readings in in-service education. Vallabh Vidyanagar, Sardar Patel University, 1968, xxvii, 366p. 141 ref.

The book presents 23 papers by different authors in six sections, each representing a theme. The first section deals with the need for in-service education in India. An attempt has been made at a systematic formation of theory of extension education defining the relevant concepts and discussing the major principles and assumptions involved. The second section discusses the procedures and practices, and the methods and techniques that could be successfully employed in in-service education. The third section discusses in-service programmes for different categories of teaching personnel. The fourth section is devoted to roles and responsibilities of various agencies in the field of in-service education and the training programme for in-service education workers. The fifth section briefly outlines the organization and programmes of in-service education in the U.S.A., U.K., U.S.S.R. and Philippines. In the sixth section, the practices techniques and problems of evaluating the impact of extension work in terms of the stipulated goals have been discussed. The appendix gives a bibliography of books, periodical articles and reports on the topic.

436 **HEMRAJANI A H**: In-service training and science education. Vigyan Shikshak 1968, 12(1), 24-7.

The working of a centrally sponsored scheme implemented in 1964-65 with the twin object of setting up State Institutes of Science Education and supply of science equipment to secondary schools, has been reviewed and the role of in-service education in improving science education has been discussed. In this connection the following suggestions have been made: 1) integrating in-service training programme with that of the improvement of science education in schools; 2) creating motivation in teachers to participate in refresher courses by providing financial incentives; 3) proper planning of the content and duration of courses and the techniques of their organization; 4) seeking the cooperation of universities, science colleges, training colleges and science teachers' associations while vesting the overall responsibility of organizing in-service training courses in State Institutes of Education; 5) organizing varieties of in-service programmes by local science teachers' associations; 6) careful designing of follow-up programmes.

437 **PATEL A S**: Evaluating the standards of teacher education. Advances in Education 1967, 2-3(4, 1-2), 18-22.

Evaluating the standards of teacher education involves investigation into the adequacy of teacher education programmes, examination of the propriety of the institutions experimenting with such programmes, and determination of the quality of the products of such institutes, keeping in view the objectives of the programme. In this context five criteria for evaluation are: 1) better understanding of pupils; 2) adequate skills in teaching; 3) right attitudes to life and profession; 4) sufficient knowledge of the subject; 5) rightful obligation to one's society and nation. A systematic study should be undertaken for establishing a standard. For example, a follow-up study of the last few years' trainees in different areas may be undertaken, collecting data under different heads o' criteria, using a questionnaire, and information blank, rating scales, and interview schedule and some case studies. The data may be gathered from trained teachers, administrators, pupils and parents and graphically represented and analyzed for year-wise comparison of the trends. Later on, a national survey may be conducted and standards set up for the whole nation.

438 RAY D P: Prāthamik śikṣak-praśikṣaṇ vidyālayoṁ dvārā seva prasār kārya (= Extension work by primary teacher training schools) [Hindi]. Naya Shikshak 1967, 10(2), 107-11.

The following basic principles are observed by the State Institute of Education (Rajasthan), while introducing extension activities: 1) the activities do not affect the education of students or increase the work load of teachers; 2) extension centres try to solve the main problem of schools in order of priority; 3) difficult language and technical jargon are not used by extension officers; 4) in order to solve problems, extension officers make use of local resources and depend on the intelligence of teachers; 5) teachers are encouraged to think about their problems, discuss them, take decisions, prepare plans and assess the progress; 6) teachers are made to realize that there is no school problem which they cannot solve themselves.

439 RAMALINGASWAMI V: Teacher training programme for medical education - general principles. Indian Journal of Medical Education 1968, 7(1-2), 103-5.

The general principles of teacher education which affect the teaching-learning situation are: 1) teaching is a genuine human activity, whether it is regarded as an art or a technology; 2) teaching is not mere transmission of information; 3) learning is an individual phenomenon accomplished by each student at his own pace; 4) teaching methods that actively involve students in learning are more likely to be effective. The method of presenting a stimulus to the student and permitting free ranging responses which are later synthesized into general principles is a way by which a student retains his knowledge better; 5) learning is enhanced by feed-back; 6) a significant aspect of educational technology is the management of reinforcing operations.

440 **SHARMA S K:** Śikṣak-praśikṣak aur paryavekṣakoṁ ekīkṛta kāryakram (= Integrated re-orientation programme for teacher educators and supervisors) [Hindi]. Naya Shikshak 1967, 10(2), 92-5.

The following principles are involved in the integrated syllabus introduced by the State Institute of Education, Rajasthan: 1) the functions of teacher educators and supervisors are similar - one imparts education at the training college level, the other at the school level; 2) the nature of education at the training college is theoretical, but the supervisors, experienced in field work, provide practical education; their functions are thus complementary; 3) the functions of teacher educators and supervisors are similar to those of producers and consumers respectively. It is desirable to establish a liaison between them; 4) supervisors can participate in district level school improvement programme, to be planned by training colleges.

441 **SINGH R P:** Curriculum planning - pre-service teacher education programme in agriculture. Progress of Education 1968, 42(7), 257-60; 283-6.

The present curriculum at the Regional Colleges of Education should be reorganized as follows: A. Livestock production: 1) selection, breeding, and reproduction; 2) feeds and feedings; 3) parasites and diseases; 4) livestock care and management; 5) milk and milk products; 6) preparing livestock for show; 7) marketing. B. Field crops - 1) soil, water and plant relationship; 2) crop rotations; 3) mixed cropping; 4) seeds and seedling; 5) fertilization; 6) irrigation and drainage; 7) control of weeds, diseases and pests; 8) harvesting, processing, storage and marketing. C. Agricultural and farm mechanics - 1) machinery; 2) buildings and fencing; 3) soil and water management; 4) electrification; 5) shop skills. D. Planning and management - 1) inventory of farm resources; 2) identifying farm and family goals; 3) cropping system; 4) livestock system; 5) labour and power programme; 6) farm finance programme; 7) maintaining farm records. E. Methods of teaching: 1) history and development of agricultural education in India and U.S.A., 2) role of agriculture in multipurpose schools; 3) role and qualification of teachers; 4) teaching techniques; 5) use of audio-visual equipment; 5) lesson planning and preparation; 6) in-service education; 7) guidance and evaluation; 8) youth activities; 9) programmes for young and adult farmers; 10) planning and management of instructional material in different situations. In order to co-ordinate theory and practice, a particular crop should be taught during each season.

42 **SHRIMALI N K**: Midil skuloṁ ke vijñān śikṣakoṁ ke praśikṣaṇ ke liye ayojit · grīṣmakālīn skul (= Summer schools arranged for the training of middle-school science teachers). [Hindi]. Naya Shikshak 1967, 10(2), 120-2.

The advantages of such summer schools are: 1) providing opportunity to science teachers to refresh knowledge and get acquainted with the new concepts in science; 2) giving them the benefit of doing practical work in well equipped laboratories and work along with resourceful persons in investigatory projects; 3) familiarizing them with new teaching methods such as workshop method, heuristic method, project technique etc; 4) providing them chances to learn biology and mathematics. It has been suggested that local resources like loco-workshops, meteorological stations, hospitals, power houses, telephone exchanges should be utilized for observational studies in science teaching. They should be induced to take interest in science teaching by adoption of new techniques in their schools.

443 **VARMA N L**: Śikṣā prasār adhikāriyoṁ evaṁ śikṣak-praśikṣakoṁ kā ekīkṛta pāṭhyakram. (= Integrated syllabus for education extension officers and teacher educators) [Hindi]. Naya Shikshak 1967, 10(2), 126-8.

An integrated programme helps to bridge the gap between theoretical and practical aspects of teacher education. While teacher educators are theoreticians who know teaching techniques and objectives of teaching, supervisors can assess the extent to which the training is being utilized by teachers and also the shortcomings of the training. The situation can be improved if teacher educators and supervisors maintain mutual contacts and exchange views and experiences.

444 **VIJ D R**: Wastage in teacher education. Advances in Education 1967, 2(3), 12-20.

A questionnaire was administered to the B.Ed. students of the year 1964-65 of the State College of Education, Patiala. In all 130 students (60 male, 70 female) responded. The following are some of the findings: 1) wastage in case of female trained teachers was more; 2) insecurity of service in private schools, non-availability of government service, low social status, and attraction for other jobs with better prospects seem to be responsible for the wastage in case of males; 3) in the case of female teachers, the economic and matrimonial motives of parents, and reluctance to serve in rural areas result in wastage; 4) paradoxically enough, the serving teachers want to leave and non-serving ones wish to join the profession; 5) strict adherence to proper rules and regulations for allotment of teaching subjects to trainees and to serving teachers would help reduce wastage; 6) the incidence of dropouts has also to be reduced.

TEACHER ORGANISATIONS

445 **MAJUMDAR A K:** Professional growth of teachers. Indian Education 1968, 7(3), 19-28.

The roles and functions of the following types of teacher organizations in the professional growth of teachers have been discussed: 1) national organizations improvement of different types of education - primary, secondary university, technical, etc. and co-ordination between them, and organization of annual conferences on educational topics; 2) state level organizations - interpreting educational problems to the public and promoting legislation favourable to the school system and to the teaching profession; 3) local or district level organizations - improvement of schools and promotion of teachers' interests; 4) accrediting and standardizing associations - formulation of educational standards and the accrediting of schools accordingly; 5) subject organizations - to keep teachers abreast of latest developments in the relevant subject field; 6) organizations for special types of schools - improvement of a particular type of school and promoting co-operation; 7) organizations representing special position - promotion of the interests of a particular type of worker rather than the interests of a special phase of education or a subject; 8) school organizations - effecting cooporation among the four sections falling in this category, the Managing Committee, the Headmaster, the teacher's council and the inspectorate.

TEACHERS

446 **CHATTERJI G N:** Difference in identification of teachers and non-teachers. Indian Educational Review 1968, 3(1), 20-45. 32 ref.

Presents a study on the identification with childhood authority figures on which primary and secondary school teachers differ from others of similar job status. The subjects were 561 teachers (354 male, 207 female) of primary and secondary schools of Tripura and 247 non-teachers (147 male, 100 female) of similar job status. The instrument used was a Bengali version of the TATSO questionnaire (Teacher's Attitude Towards Self and Others) consisting of three components: 1) a set of 26 semantic differential scales composed of 26 pairs of bipolar adjectives with 6 discriminal points between each pair; 2) another set of 18 scales composed of 18 pairs of dichotomous statements with similar points between pairs; 3) a set of 20 questions involving affectloaded interpersonal relationship with mother, father and teacher. The responses of each subject were condensed into 11 basic variables falling under three significant sectors of identificatory interpersonal relationships between subject and model: 1) personality aspect (in terms of diffused general qualities); 2) role aspect (in terms of classroom behaviours); 3) affective aspect (in terms of adoration/positively valenced affect for the childhood authority figures). The findings are: 1) teachers possess models of the identification pattern different from those possessed by the non-teachers; 2) teachers at the primary level were closer to their fathers, their best-liked teachers and their own images as teachers, but show significantly higher adoration for their teachers; 3) teachers at the secondary level indicated their greater closeness to their fathers but their best-liked teachers fail to attain a level of significance under t-tests. However, no difference existed in the results of both the levels in respect of their greater closeness to their own images as teachers and higher adoration of teachers. The conclusion is that the general feeling that persons come to the teaching profession as a last resort is not borne out, and that deeper motivations play in their choice of and continuance in the profession.

447 **DESHPANDE M V, NIKORE A:** Scaling of factors motivating teachers to work. Journal of the Indian Academy of Applied Psychology 1968, 5(1), 28-31. 19 ref.

The following eleven factors were selected for the study: 1) administrative authority in hand; 2) salary; 3) qualified headmaster; 4) social recognition; 5) appreciation of work; 6) facilties to improve qualifications; 7) co-operation from others; 8) sympathetic attitude of superiors; 9) freedom to work and try new ideas; 10) urge to learn on the part of students; 11) security of service. These factors were presented in all possible pairs to a group of 80 teachers, who were instructed to underline one of the two factors from each pair which they thought relatively more important in motivating them to work to their best. It was found that security of service, urge to learn on the part of students and freedom to work and try new ideas occupy the first three ranks. All other factors including salary have been relegated to less important positions.

TEACHING METHODS

448 **NAYYER S M:** Discussion method in teaching commerce. Commerce Education 1968, 4(9), 9-12. 4 ref.

Describes three forms of informal discussions: 1) classroom discussion - the entire class participates under the guidance and direction of the teacher; 2) committee or round table discussion a representative committee is formed with an elected chairman and the whole class acts as observers of the discussions made by committee members; 3) group dynamics - the responsibility for gathering data, organizing information, making generalization and analyzing ideas lies almost entirely on the students. The general principles and techniques of discussion have been outlined. Some topics in book-keeping and economics which may be taught more effectively by discussion method have been listed. The discussion method provides opportunities for enriching one's knowledge and intellectual activity through self-expression and exchange of views, and encourages originality and creativity. The demerits are: 1) heterogeneous groups limit the successful use of the method; 2) time-consuming method; 3) only arbitrary and critical topics can be successfully taught.

449 SUDARSANAM R: English teaching in pre-university classes. Journal of English Language Teaching 1968, 3(5), 131-8. 20 ref.

Since the pre-university course is of the shortest duration and is neither integrated with the university nor completely detached from the high school stage, it is necessary to make (a) learning at this stage purposive, and (b) teaching English a form of supervised-practice. Teachers should be trained in methods of teaching English as a foreign language. Other suggestions are: 1) the textbook should be a device by which intensive practice in all structures and vocabulary could be given individually and through group activities; 2) it should be a combination of 'scrambled' and 'programmed' textbooks; 3) there should be more than two non-detailed textbooks and as many as ten abridged versions of literacy pieces - each piece with prefaced questions and after-questions; 4) supervised practice methods should be followed to make composition work purposive; 5) there should be a test paper on the mechanics of the language and the skills, and another paper with a few essay-type questions and objective-type questions to test the candidate's writing fluency.

450 TRIPATHI S L, PANDEY L R: Comparative effectiveness of the extension teaching methods in a C D block. Indian Journal of Extension Education 1967, 3(3), 156-63. 14 ref.

The objectives of the study were to determine: 1) effective teaching methods in achieving desirable changes; 2) relationship between improved agricultural practices and effectiveness of extension teaching methods; and 3) cumulative effectiveness of various extension teaching methods. The evaluatory type of research design was prepared and the data were collected with the help of the structured schedule through interview method from 200 cultivator families of the C.D. Block, Robertsganj in U.P. The data were tabulated in the light of objectives and statistically analysed. The findings were: 1) effectiveness of extension teaching methods differs significantly (a) as a whole, (b) from each other for the same practice, (c) from practice to practice; 2) rate of adoption of improved agricultural practices is positively correlated with the effectiveness of the teaching methods; 3) number of teaching methods employed in disseminating a particular practice has positive correlation with the rate of adoption. The suggestions made are: 1) providing several exposures of improved agricultural practices through various teaching methods; 2) careful selection of only effective teaching methods for a specific practice; 3) seeking the cooperation of local leaders and local institutions for disseminating an improved practice, since indirect methods were found very effective.

451 UPADHYAY S N, SINHA M M: Transfer along a continuum in learning double alternation mazes by human subjects. Indian Journal of Experimental Psychology 1968, 2(1), 12-17. 11 ref.

400 students of class VIII, equally divided into four main groups, were studied. The subjects of the Gradual Transition Group (GTG) were given preliminary training on three easier mazes before they were tested on double alternation test maze. The subjects of the Medium Transition Group (MTG) and Abrupt Transition Group (ATG) were trained on only two mazes and one maze respectively, before they were put to the test situation. The subjects of the Direct Initiation Group (DIG) or Control Group were directly put on the test problem without any preliminary training. The error scores of the groups were analyzed on their performances at different block of trials (25%, 50%, 75% and 100% using the procedure suggested by Vincent (Behv. Monog 1912, 1(5)). These four blocks of trials and four transition situations were two main variables in analyzing the data through two-way analysis of variance. The F-ratio for transitions and blocks of trial were significant at .01 level of confidence. Thus, it was found that the GTG performed better than all other groups, DIG was poorest, MTG and ATG being in between. The results, which were interpreted to fall within the expectations of non-continuity theory of learning against continuity theory, suggest that training should be first given in some similar but easier subjects before the difficult problems are taught.

452 VAIDYA N, CHATURVEDI S: Reflective atmosphere in science teaching. Teaching 1967, 40(2), 51-6. 9 ref.

Reflective thinking among students, whereby they are required to solve problems themselves, can be developed at 5 levels: 1) dependence on text-books only, without the use of experimentation and demonstration; 2) use of textbooks in conjunction with illustrative material; 3) placing greater emphasis on observation and experimentation; 4) problem-centred teaching; 5) problem-solving approach in which students select problems. The highest level (level 5) can be reached by adopting the following methods of teaching: 1) basing lessons on definite objectives; 2) linking teaching with first-hand experience of students, laboratory work, library, and community resources; 3) providing opportunities for different oral, written, visual and practical activities; 5) putting thought-provoking questions to (a) enable pupils to think about the possible solutions, (b) help them participate in the teaching-learning process, (c) create interest, encourage written expression and guide thinking, (d) help them maintain attention to detect and diagnose incorrect interpretations and develop functional understanding; 6) helping students to discover the concepts through self-activity.

453 YEDDANAPALLI L M: Chemistry teaching in schools. Journal for Chemistry Teacher 1968, 2(1), 16-19.

A brief review has been made of the teaching methods in the USA and the UK. The main features of the teaching technique designed by the study groups in chemistry appointed by the NCERT and UGC are: 1) experiments underlying the formulation of basic chemical concepts and generalizations to understand chemical facts; 2) relating the study of chemistry to the pupils' experience and also to the national needs. The following suggestions have been made for implementing the new methods: 1) increasing the number of summer institutes, refresher courses, etc.; 2) arranging model or demonstration classes in schools by university teachers, and visits by school teachers to university laboratories to learn new techniques; 3) providing the schools with the required laboratory facilities and teaching aids; 4) further intensification of the present science talent search.

TESTS AND MEASUREMENTS

454 CHATTERJI N: Item analysis of Cattell's culture fair intelligence test, scale 2, with a view to adaptation under Tripura conditions. Proceedings of the Indian Science Congress. Pt.3. Abstracts 1968, 55,686.

The test was administered to a representative sample of 573 boys and girls of the age group 12-16 belonging to standards VI-XI of 5 higher secondary schools situated in different parts of Tripura. For the purpose of item analysis, indices of item difficulty and item discrimination were computed. The subjects of both the forms being homogeneous and being intended to cover five age groups, it was considered necessary to select items with wide range of difficulties, ensuring preference of items with higher discrimination values. However, to obtain the best possible set of items for each sub-test, they were pooled from both the forms. Thus the adapted form of the test included 58 items with difficulty level ranging from 19 to 92 and with discrimination values distributed in 4 sub-tests with item number almost in similar proportion as in the original sub-tests.

455 **FAROQUI M A, VYAS S K:** Study habits inventory for college students. Indian Journal of Applied Psychology 1968, 5(1), 48-51.

This inventory was behavioural in nature and excluded "attitude" and "problems" items from final scoring and was suitable for individual counselling as well as for large-scale research. The inventory consisted of the following 5 sections with a total of 37 items: 1) facilities at home (4); 2) study techniques (13); 3) preparation for class (10); 4) use of library (4); and 5) preparation for examination (5). The last item (i.e. no. 37) was a check list of obstacles preventing the students' best performance. Scoring: For individual counselling, the students responses could be compared with the ideal responses. The questionnaire is also scored on a selective weightage scheme (weightage 1 or 2). Items concerning home facilities and obstacles to performance and certain items of study techniques are not included in the scoring scheme. Separate scores can be obtained for different sections. Reliability: The internal consistency has been established by the split-half method by correlating the scores on section 2 with those on sections 3, 4 & 5. Validity: The validity of the inventory is expected to be revealed by its ability to discriminate between students who pass and those who fail. The inventory was tried out on 469 pre-university girl students and 90 postgraduate (male and female) students.

456 **SINHA U:** Use of Raven's progressive matrices test in India. Indian Educational Review 1968, 3(1), 75-88. 25 ref.

Although this test is being used widely in India, its validity for the Indian population has not so far been studied. Data collected from the different users of the test show that Indian subjects studying in schools and colleges do very poorly on this test when compared with the subjects of corresponding ages in the U.K. This suggests that the performance in the test depends on some ability or abilities which may be culturally determined or which have not developed in the Indian population because of their restricted experience and training. Engineering and architecture students however do relatively better than students of the same ages, and probably of the same ability, studying in general colleges. This seems to suggest that the test is loaded with factors like 'k' , which are likely to be developed more in engineering and architecture students by virtue of their training. This test correlates moderately with other verbal and non-verbal tests of intelligence used in this country. However, the validity of the test is not certain, as the validities of the other tests are hardly known. The test seems to have high reliability for the Indian population. The items also seem highly satisfactory for the ages 14 to 15. Norms for this test have been developed in some parts of India. For these to be interpreted properly, it seems essential that some intensive study on the validity of the test be undertaken. Until then, the scores on the test should be used with certain reservations.

457 TANDON R K: Construction of a battery of performance test of intelligence for ages 3 to 13. Proceedings of the Indian Science Congress. Pt.3. Abstracts 1968, 55,667.

Presents a brief account of the N.C.E.R.T. Performance Test of Intelligence, constructed and standardized by the Department of Psychology, K.G.K. College, Moradabad, which employs some sub-tests, viz: 1) cube construction; 2) picture construction; 3) bead test; 4) form boards; 5) object identification; and 6) pass-along test. The test in two parts: (a) meant for lower (3-5) and (b) upper (6-13) age groups have 36 and 35 items respectively with certain common items. The test was standardized on a final sample of 1100 cases. The administration and scoring of the whole battery takes 52 to 65 minutes. The reliability co-efficients calculated by the split-half method indicate that the test is highly valid for measuring general intelligence. Four types of norms have been prepared to interpret the raw scores: 1) I.Q. conversion tables; 2) Centile norms; 3) seven-point Z scales; and 4) T score. It has been indicated that the battery is relatively unaffected by sex difference, but positively influenced by age, education, urban-rural and occupational differences.

VOCATIONAL AND TECHNICAL EDUCATION

458 CHANDRIKA PRASAD: Integrating teaching, research and extension in agriculture. Indian Journal of Extension Education 1967, 3(3), 171-9. 20 ref.

The need for integrating the three components of agricultural education - teaching, research and extension - for the improvement of production has been emphasized. Impediments to integration are: 1) since each of the components was developed at different times, it is difficult to comprehend their inherent commonness; 2) two different organizations are engaged in the field - Indian Council for Agricultural Research for the promotion of education and research, and the Community Development Department responsible for extension activities; 3) lack of realization of the potentiality of extension service; 4) lack of dedication in implementing extension programme. A survey of literature has been made to exemplify how integration had been achieved in the United States and other countries. The following suggestions have been made: 1) involving the personnel of all the three units in broad decision-making processes; 2) undertaking combined research projects by two or more related departments; 3) introduction of a course on extension evaluation in the final year of the under-graduate programme; 4) introduction of another compulsory course for post-graduate students in extension field work to be offered jointly by the extension department and the department of the field of specialization.

459 CHANDRIKA PRASAD: Practical training through production workshop seminar. Rajasthan Agriculturist 1967, 7(April), 224-9.

Describes a workshop seminar organized at the College of Agriculture, Jobner (University of Udaipur), the specific objectives of which were: 1) to help the college teachers recognize the vitality of practical aspects of scientific cultivation and their relationship with agricultural production; 2) to make the teaching programme more practical; 3) to encourage the participants to appreciate and practice the concept of dignity of labour; 4) to develop their skill to participate in group and co-operative endeavours. The areas selected for the seminar were: 1) planning for mechanical cultivation and application of manures and fertilizers; 2) surveying, levelling and contour mapping; and 3) irrigation methods. The participants formed small working groups and studied the following topics covering the areas: 1) work on a planting machine; 2) work on a seed drill; 3) mechanical adjustments in indigenous ploughs to combine the functions of sowing seeds and applying fertilizers; 4) technique of mapping plots and levelling in contour border strips; 5) assembling, modifying and adjusting a number of agricultural implements. Making production workshop seminars as regular feature in the agricultural colleges and institutions for the benefit of teaching and field staff, has been recommended. Each seminar, however, should be restricted to one aspect.

460 **HONE A**: Economics of improving technical education. Economic and Political Weekly 1968, 3(1-2), 119, 121, 123, 125-6.

An attempt has been made to examine the cost of quantity and the benefits of quality in engineering and industrial training. It has been stressed that small amounts of rupee investment per student (improving staff salary and providing better equipment and library facilities) would effect a large increase in the Blaug-value (= $ 1,000 of utility to an employer in the U.S.A.) of each graduate. However, raising industrial productivity is conditioned by five factors: 1) orienting the curriculum to the requirements of engineering industries; 2) compulsory in-plant training as an integral part of degree and diploma courses; 3) participation of academic institutions and industrial establishments in co-operative research projects. A brief outline of such projects has been given; 4) organizing middle level management education for the benefit of the weaker section of the entrepreneurs; 5) the qualitative and quantitative improvement of the skill and semi-skilled labour forces. Two alternatives have been suggested for this purpose: (a) collecting levy from the industry for the establishment of co-operative training schools, or strengthening those departments of Industrial Training Institutes (ITI) that relate to the industry; (b) subsidizing the existing private training schemes by the Central Government. Some details of both the schemes have been given and the problem of ITIs have been discussed.

461 **JACKSON W**: Development of technical education in India - a brief report on the discussions with Sir Willis Jackson held in the Planning Commission on January 19, 1966. New Delhi, Education Division, Planning Commission, [1967]. 15p.

The following are the important suggestions made by Prof. Jackson of Imperial College of Science & Technology: In view of the large scale application of adaptation technology in Indian industries, the stress should be on the improvement and expansion of educational programmes for technician engineers as distinct from professional engineers and technicians. The existing diploma courses should, therefore, be closely related to the employment situation and industrial functions. The expensive graduate courses may be halted temporarily, concentrating the resources on the diploma programme in order to prepare a sociological and psychological climate in favour of diploma courses. The salary scale of diploma holders should also be revised. For providing industrial experience, adoption of a programme of planned practical training has been suggested. As regards graduate engineers, supplementing their education with properly identified industrial experience has been recommended. For this purpose, the importance of the employers' association with educational programmes has been stressed. Reference has been made to the Industrial Training Act in the U K which provides for the imposition of levy on industries for raising funds for industrial training. The public sector enterprises can make a beginning in this respect. Graduate engineers should not be utilized for teaching at the diploma level. For strengthening the engineering faculties, consultancy work by teachers should be encouraged. As regards the non-formal courses, the inadequacy of correspondence courses for engineering education has been pointed out. However, employed persons should be given opportunities to avail of these courses for improving their professional competence.

462 NAYYER S M: Vocationalization in higher education. Progress of Education 1968, 42(6), 206-9. 5 ref.

A number of new vocational courses in Indian universities should be established to relate higher education to the manpower needs of the developing economy. These courses should, however, be evolved after a careful analysis of the economic needs, jointly by the Institute of Applied Manpower Research, the University Grants Commission, and the Planning Commission. Providing vocational guidance to the entrants to these new courses has been suggested. The following 23 courses have been suggested: 1) advertising and publicity; 2) accountancy; 3) cost accountancy; 4) business law; 5) banking; 6) secretaryship; 7) brokerage; 8) marketing; 9) salesmanship; 10) insurance; 11) personnel management; 12) hotel management; 13) production management; 14) office management; 15) business administration; 16) statistical methods; 17) public finance and taxation; 18) traffic management; 19) foreign trade; 20) commerce teachers course; 21) stenography; 22) social surveys; and 23) journalism.

463 RAO V K R V: Industry as partner in technical education. [Convocation address at the Indian Institute of Technology, Kharagpur]. Chartered Engineer 1968, 8(3), 12-19.

Introduction of a follow-up course has been suggested for providing industrial experience to graduate engineers, in order that they may qualify as full-fledged professional engineers. Such a course, to be largely operated by the industry, should consist of a short course in manufacturing engineering or materials management, to be followed up by group projects in actual industrial situation. For dovetailing the supply of graduate engineers with the specialized requirements of industry, special centres for instruction in product and manufacturing technology must be set up. An alternative proposal is the provision of on-the-job training to graduates by different industries. The four components of such training are: 1) induction; 2) basic training; 3) basic experience of the factory floor and production methods; and 4) specialization. Similar pattern for training which has been accorded statutory recognition in U.K. has been described. The responsibilities of the Government to bring about the coordination and collaboration between industry and academic institutions, by enacting suitable legislation, has been stressed.

WASTAGE AND STAGNATION

464 D'SOUZA A A: Problem of wastage in secondary education. Orissa Education Magazine 1967, 11(3), 68-70, 81.

At the secondary stage the wastage is to the extent of 75%. Two reasons have been mentioned: 1) lack of the type and level of intelligence necessary to qualify in the purely academic type of secondary courses; 2) financial or personal difficulties, and unsatisfactory domestic environment. The following remedial measures have been suggested: 1) arranging small tutorial classes for potential drop-outs; 2) setting up effective parent-teacher association in each school; 3) providing adequate guidance service in each school; 4) adoption of a nation-wide selection procedure at the end of class VIII, involving psychological tests, cumulative school records, teacher's estimates, and standardized objective tests. Only pupils found qualified should be admitted to the higher secondary course. Others should be diverted to junior technical, trade, and commercial courses tailored to their abilities, aptitudes and vocational preferences.

465 PORTER W P: Note on wastage in educational planning. Journal of Education and Psychology 1968, 25(4), 267-72.

Dropouts and repeaters within an educational system represents only symptoms of a whole cluster of wastage factors:
(a) poorly trained and uninspiring teachers, (b) inadequate instructional materials, (c) insufficient funds, and
(d) maladministration. A large proportion of wastage could be eliminated by providing better education to teachers, affording them facilities for continuous professional growth, and creating conditions for their effective functioning. Universal primary education is a waste unless the education imparted is of good quality and sufficient reading materials are made available to maintain the literacy. Another form of wastage is reflected in the imbalances involved in the emphasis on universal primary education, and university education for a few. This deprives the young population (age group 11-24) of the opportunity of making a choice between joining the labour market and continuing in schools. A very serious wastage is the non-utilization of personnel trained abroad. A hypothetical description is given of educational systems in two imaginary

countries, one concentrating on quality of education and maintaining a balance between various levels and thus achieving the educational objectives, and the other adopting a policy of indiscriminate expansion at the cost of quality. Correcting the errors of educational planning of the latter country at this stage involves an incalculable amount of wastage. Establishing and maintaining quality at the outset, on the other hand, is cheaper.

WOMEN'S EDUCATION

466 KHUBCHANDANI K K: Social and educational attitudes to women in professional engineering with particular reference to Indian environments. Journal of the Institution of Engineers (India) - General Engineering 1968, 48(5), 115-26.

Presents the results of a questionnaire survey in which 96 (out of a total 160) representing the following categories responded: 1) women engineers; 2) men engineers; 3) heads of engineering institutes; 4) employers. The following are the findings: 1) the parents of most women engineers readily agreed to their taking up the profession; 2) although the majority did not find the courses difficult, practical work proved to be strenuous to some; 3) favourable attitude of fellow-students and encouragement by parents were reported by those who took up the profession after 1960, which indicates a marked favourable change of social attitude; 4) while the public enterprise welcomes women engineers, private employers are hesitant to employ them, but once employed the attitude towards them becomes favourable; 5) the majority of engineers feel, that research, design and teaching are more suited to women. The psychological climate in India is not yet favourable for women to take up work in construction projects, supervision and maintenance work in factories; 6) the majority of women engineers reported that the profession interferes with social responsibilities. This calls for a sharing of household jobs by the husbands, provision for day-care centres for children, etc. Appendices give the questionnaire and the answers with frequencies.

467 SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY, BOMBAY: Golden jubilee commemoration volume. Bombay, the University, 1968. 394p..

The first part contains messages received on the occasion of the Golden Jubilee Celebration (8th March 1968) and also the reminiscences of the Vice-Chancellor, Mrs. P.V. Thackersey who had been associated with the institution since its inception. The second part contains 32 articles on educational problems with special reference to women's education. Articles on women's education cover topics like history of women's education, progress of women's education in different Plans, growth of women's organizations, continuing education and higher education for women, problems of role perception and role performance in educated women. Part three gives statistical data (1951/52-1966/67) and graphs regarding women's education in India and growth and progress of the University. Part four contains a bibliography (976 entries) on women's education in India (1850-1967), with an author index.

WORKER'S EDUCATION

468 CENTRAL BOARD FOR WORKER'S EDUCATION: Eighth annual report for the year 1966-67. Nagpur, the Board, 1968. 68p.

The significant developments are: 1) appointment of a committee on workers' education by the National Commission on Labour; 2) training of 32 education officers, 2993 worker teachers and 1,28,304 workers during the year; 3) publication of 10 booklets in English and 94 booklets in regional languages; 4) preparation of additional teaching materials in the form of standard notes, lesson plans and working papers; 5) holding four need-based refresher courses and 58 refresher courses for worker teachers; 6) organizing a number of short-term programmes; 7) liberalization of grants-in-aid rules and procedures to secure better participation of trade unions in educational schemes. Several diagnostic studies in selected establishments to assess the impact of the scheme revealed favourable results.

469 CENTRAL BOARD FOR WORKERS' EDUCATION: Trade union oriented syllabi introduced. Workers' Education 1968, February 7-9.

Since the primary objective of workers' education is to promote trade union activities, the Central Board for Workers' Education in its 31st meeting introduced a revised trade-union-oriented syllabus. The syllabus lays added emphasis on subjects like trade union functions, collective bargaining, national and international trade union movement, and includes practical subjects like trade union organization, collection of subscription, union propaganda and publicity measures, union office administration, and a case study of labour wage. The syllabus for worker teachers has the following parts: 1) trade unionism - objectives, organization and administration, history and development; 2) union management and relations; 3) economics for a trade unionist - wages, productivity, and labour and planning; 4) labour legislation - legislation for promoting workers' associations, welfare legislation, legislation dealing with industrial disputes, legislation for the protection of labour; 5) workers' education - organization, tools and techniques. Syllabus for workers' training course is in four parts: 1) introduction; 2) worker and union; 3) worker and industry; 4) worker, family, the country.

470 INDIA. NATIONAL COMMISSION ON LABOUR. COMMITTEE ON WORKERS' EDUCATION: Report. Delhi, Manager of Publications, 1968. 66p.

The Committee set up by the Commission was asked to ascertain facts from available literature on the subject, draw conclusions and suggest solutions to the problems posed by the Committee. The materials made available to the Committee were: 1) annual and other reports of the Central Boardfor Workers Education; 2) ad hoc reports by foreign experts; 3) report of the Review Committee of the Central Board set up in 1964; 4) results of diagnostic studies in selected undertakings regarding impact of workers education; 5) evaluation report of the Local Committee for Workers' Education for the Bombay region. The 68 recommendations cover the following aspects: 1) trainee and trade union oriented syllabi; 2) qualitative improvement of existing programmes; 3) liberalization of grants-in-aid rules and procedures to enable trade unions to organize short-term courses; 4) involvement of trade unions and managements; 5) setting up workers' education association; 7) evaluation of educational activities; 8) administration; 9) setting up central training institute as a nucleus around which specialized schemes for training and education should be evolved; 10) putting workers' education scheme on a permanent footing and providing necessary financial grants to the Board in the regular budget; 11) foreign assistance; 12) future programmes.

471 KHAN M A: Role of Indian universities in promoting workers' education. Muslim University Gazette 1968, 17(3), 4-7.

A plea has been made for the establishment of a full-fledged workers' university which should offer courses for the line and staff representatives of labour organizations and members of the rank and file. The financial responsibility should be shared by the Government, employers, and trade unions. Besides the establishment of a university, the existing universities can introduce diploma or degree courses for industrial workers. Setting up an autonomous University Labour Education Council has been suggested for the implementation of the scheme of university level workers' education. The functionsof the Council should be: 1) development and expansion of labour education in co-operation with universities, schools, and Central Board for Workers' Education; 2) advising government, universities and other institutes in matters pertaining to workers education; 3) rendering technical assistance on request; 4) co-ordination of educational activities of various agencies at different levels; 5) preparation of an integrated courses for all universities; 6) periodical assessment of various schemes and suggestions for reforms. A brief review has also been made of the existing university level educational facilities for workers.

List of Periodicals Abstracted

Advances in Education: V 2, No 3, V 2-3, Nos 4 and 1-2
Bulletin of the West Bengal Headmasters' Association: V 17, No 1
Cenbosec News and Views: V 3, No 4
Chartered Engineer: V 8, No 3
Christian Education: V 17, No 4
Commerce Education: V 4, No 9
Eastern Pharmacist: V 11, No 121
Economic and Political Weekly: V 3, Nos 1-2
Education and Psychology Review: V 8, No 1
Education Quarterly: V 19, No 3
Educational Forum: V 12, No 4
Educational Miscellany: V 3, Nos 3-4
Educational Review: V 74, No 2
Haryana Journal of Education: V 1, No 1
IAPL Newsletter: V 3, No 1
Indian Education: V 7, Nos 3, 4
Indian Educational Review: V 3, No 1
Indian Food Packer: V 22, No 1
Indian Forester: V 94, No 1
Indian Journal of Adult Education: V 29, No 2
Indian Journal of Applied Psychology: V 5, No 1
Indian Journal of Experimental Psychology: V 2, No 1
Indian Journal of Extension Education: V 3, No 3
Indian Journal of Hospital Pharmacy: V 5, No 1
Indian Journal of Medical Education: V 7, Nos 1-2
Indian Journal of Mental Retardation: V 1, No 1
Indian Journal of Otolaryngology: V 20, No 1
Journal for Chemistry Teacher: V 2, No 1
Journal of Education and Psychology: V 25, No 4
Journal of English Language Teaching: V 3, No 5
Journal of the Gujarat Research Society: V 30, No 117
Journal of the I.A.R.I. Postgraduate School: V 5, No 2
Journal of the Indian Academy of Applied Psychology: V 5, No 1
Journal of the Indian Botanical Society: V 46, Nos 2-3
Journal of the Institution of Engineers (India) - General Engineering: V 48, No 5
Journal of the Mysore State Education Federation: V 21, No 5
Journal of Psychological Researches: V 11, No 3
Kerala Educational Review: V 6, No 1
Kurukshetra: V 16, No 6
Manpower Journal: V 3, No 4
Mathematics Education: V 2, No 1
Mathematics Seminar: V 4, No 4
Muslim University Gazette: V 17, No 3
NIE Journal: V 2, No 3
Naya Shikshak: V 10, No 2
New Concepts: V 2, No 4
Orissa Education Magazine: V 11, No 3
Prachya Prabha: V 39, No 12
Prajnan: V 2, No 1
Proceedings of the Indian Science Congress: V 55
Progress of Education V 42, Nos 6,7
Quest 1968, No 56

Quest in Education: V 5, No 1
Rajasthan Agriculturist: 1967, April
Rjasthan Board Journal of Education: V 4, No 1A
School Science: V 5, No 4
Social Studies Teacher: V 4, Nos 3-4
Social Welfare: V 14, No 11
Swasth Hind: V 12, Nos 3-4
Teacher Education: V 2, No 2
Teaching: V 40, No 2
Vigyan Shikshak: V 12, No 1
Workers' Education: 1968, February
Yojana: V 11, No 2; V 12, No 4

Newspapers:

Andhra Prabha: 29 Mar
Hindu: 21, 26 Jan; 15 Feb; 26 Mar
Hindustan Times: 6 Feb
Mail: 21 Mar
National Herald: 19 Feb
Searchlight: 29 Mar
Statesman, Calcutta: 6 Mar
Tribune: 25 Feb

SPECIAL SECTION

'BRAIN DRAIN'

A105 ABRAHAM P M: Outline for a study of brain drain from India. Manpower Journal 1967, 3(3), 15-44. 49 ref.

The following data are likely to give the qualitative and quantitative dimensions of brain drain: 1) the number of persons who go abroad during a year or a stipulated period; 2) the purpose of going abroad including the nature of activity while abroad; 3) their educational qualifications and skills; 4) duration of stay abroad, actual or probable. Supplementary data needed are: 1) number of nationals returning from abroad and their educational qualifications and skills; 2) number of foreigners in India with their educational qualifications; 3) the extent to which migration of Indian nationals retards the country's development. The sources for data collection are: 1) applications for passports providing information on educational qualifications, purpose of going abroad, and destination; 2) applications for revalidation of passports; 3) application in 'P' form made to the Reserve Bank for clearance involving foreign exchange; 4) Indians Abroad Section' of the National Register maintained by CSIR; 5) Indian missions abroad; 6) authorities in charge of naturalization and visas in host countries; 7) studies made by NSF; and 8) Institute of International Education (NY). The following tables have been presented: 1) number of passports issued and passage clearance given by the Reserve Bank of India (1961-65); 2) Commonwealth citizens resident in Britain (1961-64); 3) data on passage clearances indicating the purpose of going abroad; 4) number of students going abroad for higher studies (1952/53-1964/65); 5) Indian students in the U.S.A. by broad speciality; 6) foreign-trained scientists selected for the Scientists' Pool of CSIR (1959-66); 7) foreign-trained teachers in medical colleges.

A106 ABRAHAM P M: Regaining high level Indian manpower from abroad - a review of policies, programmes and problems. Manpower Journal 1968, 3(4), 83-117. 10 ref.

A detailed review has been made of the following programmes for inducing foreign trained scientists to return to India: 1) Scientists' Pool; 2) recruitment abroad by the Union Public Service Commission. It has been revealed that only a few of the factors preventing their return are being tackled. Adoption of measures for facilitating their return should be preceded by an identification of reasons for their reluctance to return. This would help in deciding a national policy and would bring out the importance of policies pursued by host countries in which Indian nationals are resident. A comprehensive policy for attracting nationals from abroad should have the following essential elements: 1) policy of the government and other agencies to discourage qualified persons from going abroad; 2) policy of the government and other agencies to attract those abroad back to India; 3) policies of host countries vis-a-vis the entry and stay of qualified foreign nationals. Although discouragement or prevention of migration might pose some practical and legal difficulties, it would be perfectly justifiable to withhold active assistance facilitating migration to certain categories of manpower. Discontinuation, in India, of the examinations of the Educational Council for Foreign Medical Graduates of U.S.A. is a case in point. Instead of offering attractive financial benefits only to the foreign-trained scientists, and thus discriminating against the local high-level manpower, a policy should be adopted for ensuring better utilisation of the manpower of the country as a whole. The policies of the host countries would ultimately be the most potent factor influencing the return of Indians abroad. The appendix give the resolution of the Union Ministry of Home Affairs, Directorate of Manpower (14 October 1968) constituting the Scientists' Pool.

A107 ASHOK PARTHASARATHY: Brain Drain - symptom or disease? Economic Times 15 February 1967; Journal of Association of Principals of Technical Institutions, India 1967, 20(1), 24-31.

The brain drain is not due to the supremacy of bureaucracy over scientists or socio-economic underdevelopment, but a symptom of the void in the society, national culture and policy. The cause lies in the higher educational system. Whatever may be the theoretical goals of the educational system it has practically alienated the younger generation from the social environment. A recent study by Unesco revealed that as many as 98% of students of developing countries possessing foreign qualifications preferred adopted cultural climate to their native one. In a transitional society the return from educational investment is not purely economic but involves social and psychological components also. The methodology and philosophy of higher education in advanced countries are unsuited to India's needs and demands. Although science is universal, its practices are rooted in the tradition of societies. The essential requirement for the reversal of brain drain is the formulation and initiation of inspiring and imaginative goals both for science and for the nation coupled with pragmatic scientific manpower policy. The scientists working abroad should also consider that 1) conquering poverty, disease, hunger, illiteracy, superstition etc. is no less challenging than pursuing research in highly specialized fields, and 2) a vigorous and self-sustaining tradition in science cannot be developed without prolonged fight against forces of tradition, inertia and reaction.

A108 **ATMA RAM:** Scientists working abroad - incentive for a return urged. Hindu, 1 February 1967, p.9, col.3. 400 words.

Brain drain is not a problem peculiar to India alone. It should be decided whether all the scientists could be brought back to India and whether facilities could be offered to enable them to carry on their research in India. Since scientific research is very expensive, it would be desirable to allow Indian scientists to continue their research in foreign countries in fields not immediately relevant to India's needs. However, every effort should be made to bring back those scientists who would be useful in solving some of the immediate problems confronting India.

A109 **ATMA RAM:** Slim Indian resources for research - overseas scientists may not be recalled. [Report of a press interview on 9 February 1967] Statesman 10 February 1967 p.1, cols.2-3. 900 words.

Indian scientists abroad may not be approached to return to India unless a reasonable provision for their absorption in useful activities in India is ensured. Besides the question of payment of higher salary, the non-availability of expensive equipment is another problem. The country lacks adequate resources for undertaking research in diverse fields. Even most advanced countries do not conduct research in all fields. A scientist may not be individually effective when separated from a team. In the interest of science, and in their own interests, the scientists for whom reasonable opportunities for work do not exist in India, should continue their work in foreign countries. Since scientific exchange is a two-way process, foreign scientists may work in India on projects for which facilities are available; in turn, Indian scientists may work in foreign countries on projects for which facilities are not available in India. A rational policy would be drawn up for the placement of Indian scientists in foreign universities. An assessment would be made of India's research requirements, and foreign universities offering fellowships would be asked to train Indian scientists in fields pertinent to India's immediate requirements. It is neither possible nor desirable to reserve high-salaried posts for foreign-trained scientists only, depriving indigenous talent.

A110 **ATTHREYA N H:** Reversing the brain drain - a help yourself scheme. (In Atthreya N H, Ed. organisation and administration of research and development. Bombay, MMC School of Management, 1968. 1.45-1.48).

The following suggestions have been given for providing necessary funds for scientific and technical research and setting up research organizations: 1) providing tax-incentives to industrial organizations for contributing money to R & D activities. It may be possible to persuade 10,000 organizations having profit margin of over one million rupees per annum to contribute 5-10% of their profits; 2) forming research cooperatives and non-profit trusts by scientists and technologists, since the existing research organizations have built-in handicaps and cannot provide the desirable working conditions and facilities.

A111 **AWASTHI S P**: Brain drain from developing countries - an exercise in problem formulation. Manpower Journal 1966, 2(1), 80-98. 13 ref.

An attempt has been made to evolve a suitable frame of reference designed to promote a rational formulation of the problem. The first step would be to 1) spell out clearly the categories of manpower to be included in the study; 2) identify the countries which attract the bulk of the scientists; 3) decide whether the investigation should include all manpower categories in relation to a selected host country, or one manpower category in relation to all such countries, or one manpower category in relation to one such country. Study of all categories of manpower migrating to a selected country has been recommended. Two categories of manpower which constitute the brain drain have been identified: 1) fully trained scientists who leave the country either in search of, or with offers of, employment; 2) non-returning students who continue to stay abroad beyond the specified period. Among the non-returning students some take up employment or continue to pursue academic studies. It is difficult to isolate these two categories. Some sources have been mentioned to obtain quantitative information about migrating scientists. Stress should be on ascertaining the qualitative aspects of the talent which involves a two-fold investigation: 1) analysis of quality in relation to predetermined criteria like academic distinction, research publications etc. (absolute quality); and 2) analysis of quality in relation to the needs of the countries concerned (relative quality). Some methods have been suggested for the determination of relative quality. Another point of importance is the determination of the time factor. This can be ascertained by the type of visa, viz. permanent resident, immigration, and non-immigration visa.

A112 **AWASTHI S P**: Experiment in voluntary repatriation of high level technical manpower. Economic Weekly 1965, 17(38), 1447-52.

The working of the Scientists' Pool Scheme operated by the Council of Scientific and Industrial Research (CSIR) has been described in detail. The following are some of the significant points revealed from an analysis of the data as on 1 January 1965: 1) selection to the Pool has been mainly from the registrants of the National Register - Indians Abroad Section;

2) of the 3258 candidates selected, 97.7% were trained abroad while the remaining candidates were selected against the quota earmarked for scientists with Indian qualifications; 3) 21.3% did not join the Pool, as the candidates either found the inducement to return inadequate or obtained employment on return; 4) 4.1% left the Pool for abroad. Although the number is not alarming, the trend calls for close scrutiny; 5) 51.3% left the Pool on obtaining employment in the country. It has been stressed that there should be a closer integration of the policy of voluntary repatriation of scientists abroad with the national manpower policy relating to optimum utilization of scientific talent in the country.

A113 **AWASTHI S P:** Manpower aspects of American immigration laws. Manpower Journal 1967, 3(3), 58-74.

Traces the evolution of manpower aspects in legislations governing immigration in the United States since the enactment of Alien Contract Labour Act on February 26, 1885, and also examines the extent to which the emerging trend of immigrating professional and skilled manpower from the Asian countries bears relationship to these legislations. The inflow of highly qualified professional and skilled personnel from Asia is relatively of recent origin being the consequence of the unrestrictive Act of September 11, 1957 and October 24, 1962. Although the U.S. Government had been conscious about the explicit obligation to ensure the return of persons visiting the country under the Education Exchange Programmes, such obligation does not extend to students not sponsored by the Programme. Further, the liberal character of the new Immigration and Nationality Act passed on October 3, 1965 is likely to intensify the emerging trend of immigration of professional and skilled persons from the less developed countries. The contention is supported by the fact that while the number of admissions from Asian countries made under the Acts of September 11, 1957 and October 27, 1962 until the end of fiscal year 1965 were 1,307 and 3,033 respectively, the number is likely to be 20,375, according to an estimate prepared by the Bureau of Security and Consular Affairs of the Department of State after the enactment of the new Act of October 3.

A114 **AWASTHI S P:** Migration of Indian engineers, scientists and physicians to the United States. Delhi, Institute of Applied Manpower Research, 1968, x, 87p. (IAMR Report No: 2/1968). 26 ref.

The study for the period fiscal years 1954 through 1966 is based on the data made available to the author by the Immigration and Naturalization Service of the United States Department of Justice, Washington DC and covers aspects like American immigration laws, pattern of migration, analysis of migrants by occupational categories and by country of birth, sex and selected age groups, engineer immigrants, and adjustment of status of non-immigrants. The following are some of the significant findings: 1) of the total 1958 immigrants, more than 66% were in the engineering profession, more than 20% were with occupations in natural and biological sciences and only a small minority was in the medical profession; 2) of the total of 1334 engineers, nearly 72.4% migrated during the years 1958, 1963 and 1966. Civil, electrical, mechanical and chemical engineering specialists accounted for 41.30%; 3) of the 464 scientists, as many as 66.81% migrated during 1958, 1963 and 1966. Chemists alone constituted 48.28%. Almost 20% scientists belonged to the teaching profession. Contrary to the popular belief, there was no noticeable migration of statisticians and mathematicians; 4) out of 160 physicians, 47.50% migrated during 1958, 1963 and 1966; 5) nearly 76.42% of the immigrants were born in India; 6) 95.73% of the total immigrants were males, a high percentage of females (22.03%) were physicians; 7) the majority of immigrants were in the age group of 25 to 44 and the second largest group belonged to under-24 age group; 8) a large majority of non-immigrant visa holders had adjusted their status later, excepting those who had entered the U.S. as exchange visitors; 9) instances of skilled Indians initially entering the U.S. as permanent resident constitute an insignificant proportion of the total. Real impact of the provisions of the liberalized provisions of the Act should be carefully watched in order to evolve any policy trends in this context.

A115 BHAGWATI J: Misguided attitude. Seminar 1967, No.92 (April), 20-1.

A plea has been made for a liberal leave policy to enable teachers to take up foreign academic assignments. This would help the growth of high educational standards in institutions of higher study. Indian scholars may be sent abroad on exchange programmes with some famous foreign universities. Indian scholars working in foreign universities have increased the prestige of India. Brain drain from educational institutions cannot be prevented by enforcing stringent leave rules.

A116 BHATTACHARYA K R: Brain drain - an opportunity to give a shake-up to India's science. Vijnan Karmee - Journal of Scientific Works of India 1967, 19(4-5), 8-9.

The discussion on brain drain in isolation of the national science policy has been assailed. Since the defective administration of science policy is primarily responsible for the brain drain a thorough analysis of the policy has been advocated. It has been suggested that a national symposium or conference on the problems of scientific research in the country should be convened. It would be attended by working scientists and the true supporters of the cause of science. It would examine and recommend action on such factors as the social context inhibiting the development of science, vested interests in scientific institutions, ethics in scientific publication, structure of India's scientific institutions, a rational system of administration in science, education for science, selection and training of scientific personnel. The object of this conference would be to examine problems facing the establishment of science, and not utilization of science which presupposes a well-established system of science.

A117 Brain drain [Editorial]. **Hindusthan** Standard 5 January 1967, p.4, cols.1-2. 400 words.

Instead of entering into an unequal competition with the rich nations for retention of indigenous scientific talents by offering them more attractive terms, a plea has been made to appeal to their patriotism and idealism to contribute to economic and social progress of India.

A118 Brain drain. Statesman, Calcutta 11 February 1967, p.2, col.2. 800 words.

Supports the three main contentions of Dr. Atma Ram, Director-General of CSIR [see Abstract No.A109] regarding scientists working abroad: 1) India lacks adequate financial resources to undertake research in diverse fields in which Indian scientists are engaged in foreign countries and to procure specialized equipment for research; 2) the research worker broughtback to India might be far less effective when separated from the team; 3) planned exchange of scientific personnel with other countries for promotion of research is necessary. However, Dr. Atma Ram should not have been displeased with the foreign qualified scientists demanding at least readership in universities. Salaries paid to lecturers are grossly inadequate. Such economic factor results in continual internal brain drain e.g. from Government and university to industry.

A119 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIRECTORATE OF SCIENTIFIC AND TECHNICAL PERSONNEL: Enrolment in the Indians abroad section of national register. Technical Manpower 1968, 10(1), 1-3.

Registration is restricted to persons with at least a recognized diploma in engineering and technology or qualification equivalent to a degree in other fields, who have been abroad for study, training or employment after 1 January 1957. As on 1 January 1968, there were 13,661 registrants including 51% who had returned. About 58% of those who returned were medical personnel. Of the 6229 who were abroad on 1 January 1967, 31% were scientists, 8% technologists, 45% engineers and 16% medical personnel. Chemists and physicists and bio-scientists constitute about 33.3%, 16.6%, and 25% respectively. The country-wide distribution is as follows: U.K. 37%, U.S.A. 36%, Germany 11%, Canada 5%, and other countries 11%. More than 50% of the scientists have undergone training in the U.S.A. Germany had attracted more persons for specialization in glass, plastics, paints and varnishes, printing, foundry and wood technology. Nearly 40% of engineers (main fields being civil, electrical and mechanical) had gone to the U.K. The U.S.A. accounted for a greater proportion of chemical, agricultural and public health engineers. Almost all the industrial engineers were trained in the U.S. Nearly 70% of the medical personnel went to the U.K.

A120 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIRECTORATE OF SCIENTIFIC AND TECHNICAL MANPOWER: Indian medical personnel abroad - a preliminary report. Technical Manpower 1967, 9(9), 1-2.

Presents an analysis of the data of 1600 medical personnel registered with the National Register (Indians Abroad Section): 1) over 70% of those who are currently abroad are in the age group 30-40; 2) nearly 80% had previous job experience (median salary Rs.222.00 per month), and 10% retained their jobs in India; 3) about 70% secured foreign financial support for their overseas programme; 4) the average stay for those doctors who have returned is a little over 4 years; 5) 70% had gone to the U.K.; 6) 46% had already returned; 7) the higher the academic achievement the larger is the proportion of return; 8) average expectation of salary on return is Rs.800.00.

A121 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIRECTORATE OF SCIENTIFIC AND TECHNICAL PERSONNEL: Indian scientists and engineers abroad - a preliminary report. Technical Manpower 1967, 9(8), 1-4.

Presents an analysis of the data in the National Register (Indians Abroad Section). Some of the findings are: 1) 70% are in the age group 30-40; 2) 75% were employed (median salary 350.00 per month) before going abroad; 3) 75% of the scientists and 50% of the engineers secured foreign financial support for their overseas programmes; 4) most of the registrants are from India; 5) 80% are in the U.S.A., the U.K. and Germany; 6) average stay abroad, of those who returned, was a little over 3 years, but the length of stay has been increasing in recent years; 7) about 70% of the scientists and 10% of the engineers held doctorate degrees; 8) the average expectation of salary on return is about Rs.700.00 by scientists and Rs.800.00 by engineers; 9) about 47% have returned, the percentage of return being the largest from European countries other than the U.K. and Germany, and least from Canada.

A122 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIRECTORATE OF SCIENTIFIC AND TECHNICAL MANPOWER: Regular employment of pool scientists. Technical Manpower 1967, 9(9), 2-4.

Presents an analysis of the data of 1132 (out of 1690) scientists who left the Scientists' Pool by 1 July 1967 on securing regular employment. The break-up of the sectors of employment are: university 38.1, CSIR 11.3, other R & D organizations 8.6, medical institutions 8.3, government and quasi-government (including defence) 13.4, private sector industry 10.9, public sector industry 7.2, and others 2.2%. There is a fair similarity between the percentage of placements in different sectors by the Scientists' Pool and percentage of employment in the corresponding sector. Nearly 40% were absorbed by the institutions where they were placed by the Pool. Nearly 80% (of the 423 scientists whose data were available) got about Rs.100 more than the emoluments as pool scientists.

A123 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIRECTORATE OF SCIENTIFIC AND TECHNICAL PERSONNEL: Scientists' pool - what it is and how it works. Technical Manpower 1964, 6(1), 1-3; Scientists' pool - a report on its working. Technical Manpower 1966, 8(11), 1-3.

The Scientists' Pool was set up in accordance with a resolution of the Ministry of Home Affairs (14 October 1958) for the temporary placement of foreign qualified scientific and technical personnel until they are absorbed in regular employment. The operation of this pool has been entrusted with the Council of Scientific & Industrial Research (CSIR). Persons enrolled in the Indians Abroad Section of the National Register of Scientific and Technical Personnel, who do not hold employment in India and are not assured of one on return, are considered. Unemployed scientists possessing outstanding Indian qualifications are also considered. The recruitment board consists of the Chairman or a Member of the Union Public Service Commission, representatives of the Ministry of Home Affairs and CSIR, and three scientists and technologists. The strength of the pool was 100 at the time of its constitution and has now been raised by stages to 500. Selected scientists are attached to institutions where some opportunity for utilizing their special talent exists. Although there is no time limit on the duration of stay in the pool, the period should be as short as possible. The working of the pool till 1.10.1967 reveals the following important points regarding 2012 persons who joined (out of 4649 selected): 1) fields of training - science 36.7, engineering 25.9, technology 4.9, and medicine 32.5%; 2) countries of training - the U.K. 40.9, the U.S.A. 37.0, West Germany 6.2, other European countries 4.7, India 4.2, Canada 4.1, and other countries 2.9%; 3) of the total 2012 who joined the pool, 1445 have already left after obtaining regular employment; 4) institutions to which attached (total no. working 567) - universities and other institutions of higher education 50.4%, CSIR organizations 11.3%, R & D organizations 12.3%, industry 4.4%, medical institutions 16.4%, and other organizations 5.2%; 5) duration of stay - less than 6 months 24.3%, 6 to 12 months 28.1%, 12 to 18 months 19.4%, 18 to 24 months 12.0%, and over 24 months 16.2%.

A124 **DANDEKAR V M**: Brain drain - Indian situation. Economic and Political Weekly 1967, 2(33-35), 1573, 1575-7, 1579, 1581-3, 1585-8; Financial Express 30 August 1967, 31 August 1967.

A review has been made of the papers for the symposium on brain drain published in Seminar, April, 1967 (see Abstract Nos. A115, A126, A136-7, A145, A154). The author has deprecated the tendency of providing unusual facilities to foreign trained personnel and appointing them in high positions in jobs often unrelated to their expertise. They do not necessarily represent the best talent. The author refutes the contention that the lack of academic autonomy and the conflict between seniors and juniors due to patriarchal and bureaucratic traditions in social life cause brain drain. The main cause has been explained in economic terms: 1) status and income structure for the intellectual profession which is unequal in relation to the rest of the society and also within the intellectual ranks; 2) consequent rush for higher education and also for foreign training resulting in an excess of university educated and highly specialized manpower which the economy cannot absorb; 3) ultimate frustration leading to their migration to countries where they are in demand. The following remedial measures have been suggested: 1) reducing the high premium both in terms of status and income placed on the university education and narrowing the equality within the intellectual ranks; 2) selective, discriminating and purposeful training of the scientists abroad only in fields where the necessary facilities are not locally available. In general foreign training has been recommended for junior level personnel as part of their jobs at homes, so that they return to their work on completion of the training.

A125 FERGUSON D C: Indian medical graduates in America 1965 - a survey of selected characteristics. Indian Journal of Medical Association 1967, 48(6), 291-8.

The following data about 1326 (1081 physicians undergoing postgraduate training and 245 non-trainee medical graduates) have been presented: 1) sex distribution; 2) Indian States where they received medical education; 3) year of graduation (63.3% graduated during 1960-64, which indicates that the trend is to seek advanced training soon after graduation); 4) age distribution; 5) distribution of trainees in the U.S.; 6) their specialities, citizenship, and visa status; 7) distribution of non-trainees in the U.S. Metropolitan area; 8) specialities of non-trainees and their citizenship; 9) distribution of American Speciality Board Certifications held by Indian medical graduates. The following are some of the observations: 1) the estimates of total number of Indian medical personnel is highly exaggerated; 2) in terms of the absolute number of foreign medical graduates in the U.S., India ranked eighth; 3) considering the number who have become naturalized citizens and who hold permanent resident visa, 9.2% of the 1326 graduates represent the likely 'brain drain' for the whole group; 4) it is inevitable that the physicians from developing countries trained in America will re-migrate to Western countries because of lack of working facilities in their country; 5) strengthening local and regional programmes of training, increasing the financial benefit and training opportunities, and improving the conditions of service within the country, are less costly than the loss of physicians through migration; 6) international exchange of medical faculty members and the training abroad of specialists who are on leave for such training would be a more appropriate use of international educational exchange. In addition to collecting data concerning physician migrants, some study of return rates and motivation for migration should also be undertaken.

A126 GHOSH S: Cure. Seminar 1967, No.92, 31-5.

The following causative factors of brain drain have been isolated: 1) undue importance given to foreign degrees; 2) non-working of nationalist motivation in the society; 3) lack of proper attitude to work; 4) complete absence of incentives, monetary and non-monentary; 5) defective science policy which under-estimates the importance of fundamental research and lays stress on applied research which tend to degenerate into 'adaptation technology'.

A127 GUPTA P R: Brain drain - myths and realities. Times of India 1 January 1967, p.6, cols.2-5. 1385 words.

The following arguments have been advanced to show that the phenomenon of brain drain does not exist: 1) the outflow of Indian scientific talent is less than 5%; 2) the rate of return of scientists is significant; 3) scientists going abroad do not always represent the cream of Indian scientific talent. No special facilities should be extended to foreign trained scientists. They are also not fit to work in the adverse conditions obtaining in India. A plea has been made for the adoption of a rational policy in respect of manpower planning.

A128 INDIA. EDUCATION COMMISSION: Brain drain (In Report of the Education Commission (1964-66) - education and national development. Delhi, Manager of publications, 1966. 416-17, 464).

A large number of persons who go abroad tend to stay indefinitely and many accept foreign nationality. The migration is largely to the U.S.A. The main causes are the better emoluments and research facilities available abroad. Although the seriousness of brain drain is often exaggerated, the problem needs a close and systematic study. The more powerful of the two conflicting forces, viz., love for the subject pulling towards the country which provides better working facilities, and the obligation to the community pulling towards the homeland, tend to decide the course of action of a scientist. Education should, therefore, promote the sense of commitment to one's people and social responsibility to them.

A129 INDIA. EMBASSY (USA): Directory of Indian students, trainees, physicians, surgeons, visiting scholars, faculty members in the United States as on January 1, 1967. Washington, the Embassy, 1967. 210p.

The distribution of 8,502 Indians (8289 in 1966) is as follows: 1) government sponsored students and deputationists - 65; 2) private students at universities and colleges - 7099 /_graduates 5,771 (5,192 men, 579 women), undergraduates - 998 (921 men, and 77 women), others - 330 (315 men, 15 women)_7 3) physicians/surgeons holding residencies/internships - 246; 4) private students taking practical training - 146; 5) Conference Board of Associated Councils (visiting scholars) - 30; 6) Faculty Members at universities and colleges - 916. For each candidate the following particulars have been given: age, subject of study and level, source of support and date of joining. Although only 246 doctors have been listed, according to the Council of Medical Education, American Medical

Association, (Chicago) there are 1,840 doctors working in the United States.

A130 INDIA. LOK SABHA. PUBLIC ACCOUNTS COMMITTEE (1967-68): Scientists' pool. (In its Fourteenth report (Fourth Lok Sabha) - Appropriation Accounts (Civil), 1965-66 and audit report (Civil), 1967 relating to the Ministry of Education. New Delhi, Lok Sabha Secretariat, 1968, 51-8).

The report reveals the following facts: 1) up to 1 January 1967, out of 2104 scientists and technologists who joined the pool, 1415 secured regular employment; 2) the total payment made to them up to 1965-66 amounted to Rs.14.9 million; 3) of the 336 pool officers who had continued in the pool beyond 18 months or had refused offers of regular employment, 199 left the pool voluntarily, services of 71 officers were terminated, and 66 officers had been continuing till February, 1967; 4) 91 had left the pool during 1960-66 for taking up assignments in foreign countries; 5) while the governing body of CSIR decided in October, 1965 that the stay in the Pool should not be more than 2 years, the Advisory Committee of the Pool did not favour such rigidity. The following observations are made by the Committee: 1) if the rule of 18 months' stay is strictly adhered to, it would act as a check on any tendency on the part of pool officers not to exert their best to find regular employment; 2) CSIR should maintain contact with the scientists who get regular employment, in order to judge the trend of requirements in regulating future entries to the pool; 3) since a large number of scientists in the Pool belong to the field of medicine (228 out of 650 on 30 June 1968), systematic efforts should be made to absorb them in the health and family planning programmes of the government and in the Army Medical Corps; 4) the possibility of absorbing engineering scientists in R & D programme of the Ministry of Defence and in public sector undertakings should be fully explored; 5) scientists who leave the Pool once should not be taken back.

A131 INSTITUTE OF APPLIED MANPOWER RESEARCH, NEW DELHI: Engineers abroad. (In its Graduates of Indian Institutes of Technology in India and abroad. Delhi, the Institute, 1967. 55-74).

An analysis has been made of the data of 196 engineers who graduated from the Indian Institutes of Technology during 1961-64 and who went abroad. The following are the findings: 1) distribution of specialities - mechanical, electrical, and chemical engineering 20% each, civil engineering 13%, and meteorology 11%; 2) distribution by host countries - The U.S. 60.7, the U.K. 18.4, Canada 9.7, West Germany 6.6, and others 4.6%; 3) 84.6% obtained first division; 4) 61% went abroad for higher studies and 21% for study as well as employment; 5) private funds are the source of finance for travel and study abroad of 40%, followed by scholarships (37%); 6) 58% were undergoing higher studies or training before they went abroad. Out of this 55 had left the country even before the completion of one year after graduation. Two conclusions can be drawn from this: (a) many of them did not even enter the labour market in India; (b) after graduation they tried for admission to postgraduate courses both in India and abroad but left the country on obtaining admission in foreign universities. Thus it appears that facilities of postgraduate studies are not satisfactory; 7) the earnings of engineers relative to per capita income are much higher in India than in the U.S.A. It has been suggested that Indian embassies abroad should keep in touch with qualified Indian scientists and technologists and disseminate information about job opportunities in India.

A132 IRELAND R R: Indian immigration to the United States, 1901-1964 - retrospect and prospect. Indian Journal of Economics 1966, 46(183), 465-76.

The study reveals the following facts: 1) the U.S. immigration records indicate very little Asian immigration before 1854; 2) prior to 1917, there was no general restriction on immigration from India other than the general excluding provisions applicable to all immigrants; 3) after the enactment of immigrations Act of 1924, a sharp drop in Asian immigrations was noticed; 4) during 1948-64, 4667 immigrants (1843 during 1962-64) from India were admitted as against 8685 during 1901-1947; 5) in spite of the restrictive nature of Immigration and Nationality Act of 1952, Indian immigration continued to grow at a steady pace; 6) by 1964, 252 persons were naturalized; this number exceeds the total number naturalized between 1948 and the passage of 1952 Act; 7) the total number of persons naturalized during the period 1948 to 1964 was 1570; 8) the implications of the new Immigration and Nationality Act of 1965 vis-a-vis the flow of professional technical personnel from India to the U.S.A. have yet to be felt. However, the following data may give some indication: 1) of the 350 immigrants (total being 634 including their wives and children) belonging to different occupational groups who were admitted in 1964, about 66.6% were professional, technical and kindred workers. Similarly, of the 174 persons (total being 252) who were naturalized in 1964 66% belonged to the professional and skilled class.

A133 JHA S C: Problem of brain drain in India. Economic Times 19 January 1968, p.7, cols.3-6; p.6, cols.1-3. 2770 words.

Any discussion on brain drain should be preceded by settling the following issues: 1) at what level of training does a person become sufficiently skilled to be considered as net resource of the country? 2) the duration of stay abroad on completion of advanced training, beyond which he would be considered as a loss to the country. The author did not agree with the analysis of the situation made by M.V. Dandekar (see Abstract No.A124), who seems to be prejudiced against foreign training. The problem has to be examined in relation to the entire educational and employment policies. The suggestions are: 1) emphasizing loyalty to motherland in early stages of education and impressing students with the importance of service to their homeland before they go abroad; 2) financing imaginative institutions free from political influence which can provide a challenging intellectual and professional climate; 3) requesting the friendly developed countries not to encourage Indian nationals to stay permanently in those countries; 4) appreciation by seniors of the talent of juniors, and effective utilization of foreign trained specialists.

A134 KINI R: Brain drain - self-exiled Asians. Times of India 18 October 1967, p.8, cols.3-5, p.9, col.5. 1305 words.

The following facts have been revealed by the discussions of the author with a cross-section of Asians abroad: 1) a large majority would like to return; 2) those seriously involved in research projects do not like the work to be interrupted;3) another section who are not involved in work of continuous nature do not like to return due to inadequate facilities and salary; 4) among this category there are people who could be successful teachers. However, they would prefer a teaching-cum-research assignment; 5) those having foreign wives find difficulty in returning. The trend of thinking of Asians abroad has been analyzed.

A135 MANSOOR ALI: Loss of scientific and technical manpower and its impact on economic development of India. Indian Industries 1968, 12(2), 11-12.

The main causes of brain drain are: 1) lack of research facilities and research atmosphere; 2) lack of competition and challenge in research and creative work; 3) favouritism, casteism, communalism and regionalism in the recruitment and promotion of scientists; 4) lack of encouragement and recognition of merit, inappropriate industrial, educational and administrative policies as well as lack of scope for scientists in industries. The suggested recommendations are: 1) extension and liberalization of the Scientists' Pool scheme; 2) provision of more research facilities and better surroundings in academic and research institutions, government, industries; 3) keeping research institutions, universities and public sector undertakings away from politics; 4) promotion of liberal travel facilities for further training in foreign countries; 5) provision of more emoluments and amenities; 6) convening an All India Conference to consider the various factors of the problem; 7) setting up a high power committee consisting of all the concerned parties to implement the recommendations of the conference; 8) scientists should be requested to work with full devotion as well as with the spirit of tolerance and sacrifice.

A136 MODDIE A D: Creating conditions. Seminar 1967, No.92 (April), 17-20.

Examination of the brain drain problem involves: 1) adequate factual data; 2) a sociological study of environmental conditions of specific disciplines and provisions; 3) a study of the family circumstances of a representative sample of cases not returning to India; 4) study of the implications of marrying abroad. On the basis of the limited data available, the following tentative conclusions may be drawn: 1) the extent of loss is unknown; 2) rate of departures seems to be fairly uniform and unless the condition of work is improved the loss may assume a potential form in future; 3) two primary contributing factors in the loss are: a) lack of enough opportunity and early recognition in the country; b) the pressure of foreign wives who are not inclined to settle in India; 4) some evidence of loss of precious talents of the very highest order exists. Lack of adequate utilization of indigenous talents in India represents another form of brain drain. Development of a national policy has been urged and the role of Indian missions in foreign countries in persuading the scientists abroad to return to India has been stressed.

A137 MOHINDER KUMAR: No loss. Seminar 1967, No.92 (April), 12-16.

It has been contended that the mere fact of Indians working abroad is not conclusive evidence of the problem of brain drain. The problem would exist only when the vacuum created by the migration of talents (non-resident brains) cannot be filled up by local talents (resident brains). The existing economic and political instability of the country is not due to the non-availability of the services of non-resident brains. The correct step would be to make best possible use of the resident brains. The phenomenon of Indian intellectuals settling abroad cannot be described as brain drain but as simple migration of scholars. This is the unavoidable consequence of study abroad. The complaint that foreign qualified Indians are discriminated against and this in turn causes migration of scholars is only partly true. Often foreign degree holders are preferred to Indian degree holders. In the field of social sciences, a foreign scholar is extended better privileges. From the international angle the migration of scholars facilitates exchange of culture and the resultant promotion of better international understanding and mutual self-respect.

A138 MURTHY N S K: Brain drain. Vijnan Karmee - Journal of Scientific Workers of India 1967, 19(4-5), 5-6.

The author supports the contention of Dr.C.V. Raman that the stay of any scientist outside India is not a loss to the country. Those staying abroad should not be encouraged to feel that they are indispensable to the country. It is also no use to instil idealism in those who prefer to live a comfortable life abroad. On the contrary, local talent should be encouraged to widen their knowledge and become useful to the society. However, conditions should be created for the growth of scientific spirit. The present system of bureaucratic hierarchical system of grading men's talent should be done away with. The scientists staying abroad are welcome if they return voluntarily and with the expectation of hard work and not prestige or high position.

A139 NARAYAN R K: Young scientists dilemma. Hindu 20 September 1966, p.6, cols.3-6. 1300 words.

Presents a case study of one U.S.A. trained Indian scientist who had to leave the country for lack of opportunities. The problems faced by him were: 1) insular attitude of those in authority towards the foreign trained scientists; 2) lack of easy access to and feudal attitudes of the higher authorities; 4) non-challenging academic life not conducive to research activities; 6) the peculiar attitude of the society towards the foreign returned, creating problems of social adjustment.

A140 National loss of scientific and technical personnel [Editorial]: Vijnan Karmee - Journal of Scientific Workers of India 1967, 19(4-5), 1-2.

It should be first ascertained whether the services of scientists and technologists working abroad are needed for the economic and industrial development. Most of them are aware of the conditions in India and would be able to adjust themselves to local conditions and facilities. Three suggestions have been made: 1) since the major avenue of absorption of scientific and technical personnel is the industry, government should orient the industrial policy to provide greater scope for utilization of scientific and technical personnel; 2) it should be determined whether the resources for education are being invested in the field which has direct relationship to the needs of industrial development of the country; 3) intensive surveys, collection of data and countrywide studies should be undertaken to ascertain the necessary facts related to brain drain.

A141 PADMANABHAN B S: Better utilisation of Indian scientists. Hindu 25 September 1967, p.6, cols.3-6. 1440 words.

Presents a report of the meeting of the panel of scientists held on 6 September 1967, convened by the Prime Minister to discuss three aspects: 1) scientific temper; 2) science policy and organization; and 3) planning and utilization of research and technology. On the question of brain drain the panel emphasized that brilliant scientists working abroad should be allowed to return and necessary facilities should be extended to enable them to work with a team of their own choice. Such scientists should form the nucleus around which centres of excellence would be developed. Senior scientists in India should directly contact Indian scientists abroad who would be willing to join their groups. The panel however opposed the adoption of different criteria of judgement for Indian and foreign trained scientists.

A142 RAHMAN A, SHAMA RAU T H: Flight of scientific and technical personnel. New Delhi, Research Survey & Planning Organization, CSIR, 1967. 17p. 29 ref. (Occasional paper ser.,2).

Four factors viz., historical, social and political, economic, and working conditions, causing brain drain are discernible. The group of people contributing to brain drain from India are: 1) persons changing their nationality; 2) persons staying abroad beyond three or four years. The type of people who come under these categories are: 1) internationally reputed scientists;2) relatively good or average workers; and 3) technicians. An examination of the records of the Scientists' Pool of CSIR, which form the only data available for assessment of the situation, indicates that the phenomenon of brain drain exists. However the nature and extent is not ascertainable. Whether these scientists are dispensable or not would depend upon the national policy of investment in science and technology. However, two factors indicate that the country could dispense with their services and that their migration would not seriously affect the scientific and technological progress of the country: 1) existence of large scale unemployment and mal-employment among scientists and technologists; and 2) considerable difference in service conditions between scientists and technologists, and administrative personnel. Some of the suggestions are: 1) collection of data to ascertain the extent of emigration in various branches of science and technology; 2) professional categories and the calibre of emigrants; 3) flow of emigrants; 4) study of reasons for staying abroad for a long period; 5) opinion survey of scientists a) who did not accept the offer to join the Scientists' Pool, b) who left the pool, and c) who are still in the pool; 6) dissemination of information on employment opportunities through embassies; 7) tackling the problem at national level by the University Grants Commission and the Ministries of Home, Labour and Education.

A143 RAY K: Overseas trained personnel. [In his Scientific and technical personnel. New Delhi, Office of the Registrar General India, 1966. 75-7. (Census of India, 1961 Monograph series, No.1)].

Two sources provide information on Overseas scientific and technical personnel: (a) National Register - (Scientists Abroad Section) maintained by C.S.I.R. which includes postgraduate and post doctoral students and also persons in employment, (b) Technical Division, Ministry of Education [published in the statistical publication of the Ministry entitled Education in India, v.2 - see vol 1, no.1, abstract no.27] which excludes persons in employment, but includes undergraduates studying abroad. Overseas programmes can be grouped into two categories: (a) for acquiring degree, and (b) for training only. Among the postgraduate scientists about 65% take degrees, while the remaining go for training and research. While about 85% of the civil engineers go for degrees, the electrical and mechanical engineers are almost equally divided between the two categories. Industrial engineering, production engineering and marine engineering are some of the new fields for training. About 15% of the scientific and technical personnel are assured of employment on return.

A144 RAY K: Utilizing India's absentee manpower. Statesman, Calcutta 1 August 1967, p.6, cols.4-6.1400 words.

Although divergent views exist on brain drain, the fact remains that about 20,000 scientists and technologists who should be considered as country's assets are currently abroad. Any suggestion for considering them redundant indicates a serious lack of realism in the matter of planning and development. There are two problems: 1) qualified persons not returning from abroad; 2) lack of employment opportunities for those who return. The average period of stay in foreign countries has increased from about 2½ years in 1960 to 5 years at present. This trend indicates a hesitation to return and an accumulation of trained persons abroad. The prevalent notion that only persons of low calibre go abroad is wrong. The proportion of first class graduates among the overseas personnel is higher than the national average. About 70% are in the age group of 30 to 40, and 75% held employment before going abroad. Further, nearly 70% are financially supported by the host countries and 5-10% are recipients of government scholarships. It is also not correct that those who want to return expect only high-salaried jobs. Paradoxically enough while a large number of vacancies exist in different organizations, they are not being filled in spite of the availability of qualified personnel. Two suggestions have been made: 1) work opportunities should be expanded for industrial and economic progress without depending on foreign assistance; and 2) examination of the overseas education and training programme in the light of the facts now available.

A145 RAY P S: The problem. Seminar 1967, No.92(April),10-11.

The following problems of brain drain have been presented: 1) India is already short of both physical equipment and technical know-how. Further, the vacuum created by brain drain cannot be filled by foreign technicians and administrators; 2) brain drain facilitates the perpetuation of mediocre domination in the intellectual field; 3) brain drain is a consequence, not so much of national poverty, but of misunderstanding between two generations of experts; 4) prohibiting study abroad would result in shortage of young scientists capable of using the results of most competitive science for the benefit of the country. However, the talented emigrants increase the prestige of the country.

A146 Reverse flow: Tribune 18 February 1967, p.4, col.1.595 words.

It had been estimated that the entire U.S. aid to developing nations had been equalled by the value of the technological and scientific manpower migrated to the donor country. Thus the U.S.A. would gain by the recent Indo -U.S. agreement for exchange of high-level scientists.

A147 A revised view [Editorial]: Amrita Bazar Patrika 11 February 1967, p.6, col.1. 405 words.

The revised policy of CSIR regarding Indian scientists abroad as enunciated by Dr. Atma Ram [see absract No.922] has cleared the wrong notion that scientists working abroad are devoid of patriotism and work in foreign countries for monetary gain only. It is expected that the new policy would be implemented.

A148 SARIEN R G: Urge to leave /Letter to the editor7. Hindustan Times of August, 1967, p.7, cols.2-3. 465 words.

While agreeing with the contention of Sarkar (see Abstract No.A149), it has been pointed out that denial of a fair deal and suitable opportunities to work, rather than financial considerations, cause brain drain. The correspondent's discussion with a number of Indians in the United States, Canada and Europe revealed that lack of adequate opportunities to work in the areas of their specialization and the bureaucratic set-up in the country, are the other causes. It has been stressed that continuation of brain drain would retard the development of the country. Adoption of a national policy has been urged to rehabilitate the foreign trained personnel by giving them ample opportunities to work without fear and interference.

A149 SARKAR C: Urge to leave for good. Hindustan Times 28 July 1967, p.7, cols.5-7. 950 words.

The present migration pattern of highly qualified Indians in technology and fields like nursing, to the detriment of India's progress, has been deprecated. For instance, about 20,000 Indians register every year to migrate to Canada and about a thousand actually leave the country (1,154 in 1964). The following reasons compelled two families to leave the country: 1) promotion and opportunities do not depend on merit; 2) the very special skill acquired abroad could hardly be used; 3) uncertainty about children's education and future; 4) rising cost of living; 5) the complex bureaucratic set-up; 6) lack of employment opportunities.

A150 Scientific personnel /Editorial7. Assam Tribune 12 February 1967, p.4, cols.1-2. 735 words.

The reversal of official policy in regard to Indian scientists abroad as outlined by Dr. Atma Ram in a press interview /see abstract number A1097 seems to have been promoted by the finding of a recent CSIR study, that the country has a surplus of scientific and technical personnel. It appears that some confused thinking exists regarding scientists abroad. A distinction should be made between foreign qualified personnel and talented personnel trained abroad. Government should try its best to persuade the second category to come back. The plea of lack of funds or equipment is not fully convincing. Although India cannot offer fabulous salary to this category of scientists, the large disparities in salaries between scientific and administrative personnel should be bridged up. Brilliant scientists often complain not so much about Indian salaries as lack of encouraging atmosphere and scope for initiative.

A151 SEN GUPTA G: Brain drain [Letter to the Editor]. Statesman, Calcutta 15 August 1967, p.8, col.8. 325 words.

The views expressed by K. Ray [see Abstract No.A144] have been supported and the proposal of the Director General, C.S.I.R. to wind up the Scientists' Pool has been criticized. His contention that scientific exchange is a two-way traffic, (see Abstract No.A109) is true only in respect of a country like the U.K. vis-a-vis the U.S.A. Foreign institutions provide better training and research facilities. The growing concern about brain drain is more due to the existence of a wide gap between employment potential and available qualified personnel, than the fear of losing some of the best talents of the country. While foreign training should not be discouraged, efforts should be made to bring back the scientific and technical personnel working abroad.

A152 SUBRAMANYAN N: Brain drain or brain down the drain. Vijnan Karmee - Journal of Scientific Workers of India 1967, 19(4-5), 7.

It should be ascertained first whether the talent migrating abroad can be replaced by local talent. However, an examination of the question of brain drain reveals two problems: 1) inadequacy of training to maintain an inexhaustible source of talent. The problem is related to the educational system; 2) lack of congenial conditions of work for talented personnel. This aspect deserves careful consideration and the extent of facilities that can be extended to them depends on the demand for the particular type of talent in the country. However, extraordinarily preferential treatment would result in the creation of a new type of casteism. It is interesting to note that complaints about brain drain are voiced only by persons who are trained abroad. The real problem however is the wastage of talent in the country for lack of proper direction and utilization.

A153 SURI S: A case study. Seminar 1967, No.92(April), 22-5.

Describes the problems faced by the author, a social scientist, on return from abroad. The problems confronted were: 1) social structure which forces a scientist to accept a job not suited to his talent; 2) patriarchal tradition in which a person in senior position, irrespective of his competence expects his name to be associated with the work of his juniors; 3) political bias of individuals which makes impossible any objective study of political problems. A scholar need not necessarily be a nationalist. While foreign scholars should be encouraged to work in India, Indian scholars should not be discouraged from working abroad for the development of their talents. Indian scholars working abroad also contribute to the intellectual development of India.

A154 **ZAHEER** S H: Brain drain problem. Vijnan Karmee - Journal of Scientific Workers of India 1967, 19(4-5), 3-4.

Indian scientists working abroad fall into three categories: 1) a limited number belonging to the 'scientist elite' and working in highly sophisticated fields; 2) scientists who prefer the social life and living conditions abroad; 3) scientists who have temporarily decided to stay abroad, but desirous of returning to India. Some suggestions have been made to facilitate the return of the last category: 1) extension and further liberalization of the Scientists' Pool scheme operated by CSIR; 2) creation of larger number of posts and providing wider opportunities for them, not only in academic and research institutions and governments, but also in public and private sector industries; 3) creation of healthier surroundings conducive to creative work in these institutions; 4) streamlining the methods of recruitment and promotion; 5) providing liberal facilities for travel abroad for further studies and training; 6) greater appreciation of the vital role of science and scientists in developing society. The view that Indian scientists should not return unless they can secure jobs, has been deprecated.

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ACADEMIC ACHIEVEMENT

472 DEB M: Abilities important for achieving success in science course. Psychological Studies 1968, 13(1), 43-6. 4 ref.

A questionnaire consisting of 14 statements (description of special abilities) was sent to the headmasters of 427 schools offering science courses in West Bengal. They were asked to indicate the extent of importance of these statements. A total of 240 responded. Harper's Table (Harper A E (Jr). Tables for lowest useful score on multiple choice test. Unpublished paper) was used for determining the lowest useful score and Likert's method (In Woodworth R S, Ed. Archives of Psychology, No.140) was followed for assessing the proper weightage of each statement. The weightage of the statements describing special abilities varied from .02 to 1.88. It was found that 4 abilities, viz. reasoning ability and intelligence, numerical ability (skill in numerical calculations), mechanical ability (reasoning and understanding mechanical relationship), and spatial ability (perception of space relationship) played an **important** role in the achievement of success in science score. Verbal ability (fluency in the use of both written and spoken language) was found to be of least importance.

473 GOEL A N: Differential study of family problems at different levels of achievement. Journal of Educational Research and Extension 1968, 4(4), 129-35.

The study aimed at finding out the specific intensity level of the problems experienced by high, average and low achieving pupils (110) in the age group 10-15 reading in grade VIII in schools in the Meerut Cantonment area (U.P.). The study involved the following steps: 1) administering problom inventory to ascertain the family problems and their intensity; 2) administering achievement tests in Hindi, English, history, geography, mathematics, and general science; 3) finding out the significant differences between the family problems at different levels of achievement; and 4) administering socio-economic status scale and the intelligence test. Some of the findings and conclusions are: 1) only one problem was felt at the highest intensity level by average achievers; 2) maximum number of problems were felt at the high intensity level by average achievers while low achievers felt minimum number and high achievers fell in between; 3) achievement influences the frequency of the problem at the high intensity level; 4) average achievers feel maximum number of problems because their aspiration level is higher although their capacities are lower.

474 SHAH M: Sex differences in academic achievement (In Shreemati Nathibai Damodar Thackersey Women's University, Bombay: Golden jubilee commemoration volume. Bombay, the University, 1968. 192-7. 7 ref.

Achievement tests constructed by the Gujarat Research Society (for standards V, VI and VII) and by the Baroda University (for standards VIII, IX, and X) were administered to a sample of 3890 boys and 3648 girls reading in urban schools in Greater Bombay in standards V-X. The sample was divided into five IQ groups viz. 75-94, 95-104, 105-114, 115-124 and 125+. The tests covered seven subjects viz. Gujarati, Hindi, Arithmetic/Mathematics, science, history and geography. The scores were analyzed to determine the existence of sex-differences for each standard for the total group and then to find whether differences existed within the different IQ groups. The standard-wise analysis for the total group as well as the analysis based on different IQ groups revealed no significant difference between the two sexes. The results are contradictory to the findings of most earlier studies in which substantial sex-differences in achievement were noted.

ADMINISTRATION & ORGANIZATION

475 APPADURAI A: Universities and parliament. Hindustan Times 16 May 1968, p.9, Cols.4-6. 1000 words.

The frequent discussions in Parliament on matters of routine administration of universities have been deprecated as they impair university autonomy. The background of the enactment of the University Grants Commission Act has been discussed and it has been pointed out that the Commission was created to enable Parliament to devolve its constitutional functions of co-ordination and determination of standards in higher education upon this expert academic agency, reserving to Parliament the right to lay down general principles. Thus by implication, Parliament decided not to interfere in the day-to-day administration of universities. In this connection it has also been recalled that a resolution passed by the Inter-University Board of India and Ceylon in December 1966, requested the Chairman of the Board to discuss with the Chairman of Rajya Sabha and the Speaker of Lok Sabha, the question of evolving a parliamentary convention under which matters impinging on the autonomy of universities would not be discussed in Parliament.

476 DONGERKERY S R: University autonomy in India. Bombay, Lalvani Publishing House, 1967, 128p. 211 ref.

Chapter 1 discusses university autonomy. A distinction has been made between university autonomy - the university's right of self-government, and academic freedom - the professional freedom of teachers and the academic freedom of students to express and defend their opinions and beliefs. Indian universities enjoy the greatest measure of autonomy in their internal administration. As regards the degree of autonomy they stand between British universities on one side, and continental and European universities on the other. Chapter 2 discusses the assaults on university autonomy by government in different countries. The three main grounds for such assaults have been ideological, racial and political. In India, political considerations motivated government to curb university autonomy. Chapter 3 traces the history of university autonomy during British rule. University autonomy was least violated during this period. The reasons were: 1) British traditions of university autonomy and 2) genuine fear of the rulers of offending Indian intelligentsia whose cooperation they needed. Chapter 4 deals with the history of university autonomy in independent India. Numerous instances of violation of university autonomy have been due partly to the fact that the democratic traditions of university autonomy have yet to take root in the soil. Chapter 5 and 6 describe Osmania University's (Hyderabad) successful fight with the State government of Andhra Pradesh to preserve its autonomy. Chapter 7 describes the recent Maharashtra Agricultural University Bill and the Kerala University Bill as instances of the increasing tendency of State Governments to control universities. Appendices give some documents and press comments relating to the Osmania University affairs described in Chapter 6.

477 LAWRENCE H S S: First school complex in Tamilnad. Madras Information 1968, 22(5), 30-3.

Describes the first school complex programme inaugurated in Panapakkam in North Arcot district on 4th March 1968, in accordance with the recommendations of the Education Commission. A group of 10-20 primary schools and 3-4 upper primary schools around a secondary school is considered as a viable unit of educational reform with good potential for planning, guidance, and improvement. The headmaster of the secondary school functions as Chairman of the committee consisting of headmasters of all upper and lower primary schools as members. The Committee plans the work and provides guidance to each upper primary school complex. The adoption of the school complex programme was preceded by seminars organized by the State Institute of Education to spread the idea. The tentative month-wise programme for one year includes field trips, visits to neighbouring factories, film shows, demonstration lessons in different subjects, talks and discussions on educational problems. The district educational authorities are to cooperate with the complex to make the programme successful. The teachers of the complex area have indicated their interest and willingness to work for improving the quality of education.

478 PARASHAR O D: Human relations in educational administration. Indian Education 1968, 7(5), 13-18. 8 ref.

A plea has been made for the humanization of the whole educational administration through the establishment of good human relations between all positions in the organization. Research studies had revealed that the higher the role-discrepancies between the individuals, the higher will be the role-conflict. Minimizing the role discrepancies between various positions, therefore, would result in humanizing the administration. However, the problem is complicated since it involves conflicts in attitudes rather than actions. The following suggestions have been made: 1) change in the attitude of administrators towards their own positions and towards their subordinates; 2) feeling in the administrators that the authority vested in them is not meant for realizing work from subordinates through compulsion; 3) development in subordinates, of a sense of involvement in the work.

479 SAROJINI DASARATH RAM B: Developmental approach to school organization. Educational India 1968, 34(9), 296, 302; 34(10), 333, 340.

Three forms of grouping the learners - grade grouping, ability grouping and social maturity grouping - have been discussed and the following points have been suggested to educational administrators: 1) good grouping should provide for individual differences among children; 2) the size of the group should be kept reasonable and the structure flexible; 3) the structure of the grouping should encourage desirable interaction among children and reduce the tendency of developing social cliques; 4) grouping should permit a substantial amount of control and direction by pupils in cooperation with the teacher; 5) grouping should encourage the use of such subject matter as will promote the learner's maturity and should also encourage multiple varied approaches to learning; 6) it should be possible for teachers to study children in varied social situations; 7) grouping should provide teachers with a psychologically comfortable working climate free from pressure to achieve arbitrarily set goals, and create a wholesome climate socially, emotionally and academically for children, free from unreasonable demands for performance beyond their maturity level.

480 GUPTA N R: Organization of adult literacy programme. Indian Journal of Adult Education 1968, 29(4), 7-9.

The organization of adult literacy programme should take into consideration the objectives of the programme, the participants, the inherent difficulties in its implementation, and the means to work the programme. The following 5 factors involved in the programme have been discussed: 1) teachers - the basic principles of group process should be followed by teachers in conducting lessons, developing practice, and providing opportunities for participation to learners. Teachers should be extra cautious, patient and sympathetic to learners; 2) learners - the behaviour characteristics of adults and their needs should be properly understood, because they have accumulated some experience, and find interest only in matters which satisfy their aspirations. Further, they are fatigued and would learn only through recreation; 3) reading material - material consisting of lesson cards, charts, posters, photographs and books, can sustain the learner's interest. The thought content should be sufficiently mature but presented in a simple manner; 4) building, furniture and equipment - a congenial physical environment and adequate number and types of equipment to make the learning process easy, quick and interesting; 5) work procedures - (a) beginning the programme with community singing; (b) review of daily news and description of current topics; (c) reading and writing lessons; (d) reading from library books; (e) cultural programme (once a week); and (f) concluding with group song.

481 ROKADIYA B C: University and continuing education. Indian Journal of Adult Education 1968, 29(5), 11-12.

Some characteristics of a continuing education department of a university are: 1) development and supervision of educational programmes for adult part-time students; 2) sharing with other departments the resources to be devoted to continuing education as distinct from preparatory education; 3) extending the sources of knowledge to a broader cross-section of the community; 4) part-time work by institutional personnel unlike the staff of a university faculty; 5) performing many teaching-related roles by programme administrators. The university continuing education is concerned with organized formal or informal education for the growth of individuals, and improvement of their knowledge and skills. It also covers other objectives of adult education. The suggested approaches for achieving these goals are: 1) offering specialized courses (non-examinable) to teachers, school administrators, social workers, engineers and other professionals; 2) organising extension programmes varying from general liberal education to education for appreciation of social, political and cultural issues; 3) beginning courses in different languages; 4) providing residential type continuing education centres; 5) correspondence courses supplemented by tutorial guidance; 6) educational courses for professionals who work with adults in different capacities such as business managers, social workers, nurses; 7) a programme of evening courses leading to a degree, specially for adults.

482 SHUKLA P D: Education permanente or life-long education. Indian Journal of Adult Education 1968, 29(3), 11-16.

Some major developments which necessitated a change in the traditional approach to education are: 1) growth of modern science; 2) explosion of knowledge; 3) advance in technological and specialized skills; 4) productive use of leisure; 5) breakdown of traditions and customs; 6) acceptance of parliamentary democracy and democratization of cultural life; 7) movement of population; 8) changing social, economic and political situation. In these circumstances even the best education became out-of-date very soon. The following major modifications in the educational system have, therefore, been suggested: 1) creating an aptitude for continuous learning among pupils and teachers; 2) a complete overhauling of teachers' attitude and teacher education programmes; 3) introduction of work-experience and other co-curricular activities and reform of the examination system; 4) adoption of a policy of recruiting people with minimum essential schooling at a younger age and providing continuous in-service training; 5) production and distribution of various types of literature, utilization of different kinds of mass media of education; 6) establishment of a national system of public libraries; 7) widening the scope and function of adult education programmes which should provide for literacy, functional literacy, informal education, educational extension, correspondence courses, sandwich courses, short courses, refresher courses, and re-orientation courses. The advantages of such programmes are: 1) increased production and national wealth; 2) less disturbances and strikes; 3) reduction in expenditure of parents and the State.

483 SOHAN SINGH: Implications of life long education. ASPBAE Journal 1968, 2(4), 14-21; Indian Journal of Adult Education 1968, 29(3), 17-20.

The implications of the concept of life-long education have been discussed under three heads: A. Educational policy - 1) planning of education, considering it as a life-long process; 2) decentralization of educational function. The educational function should no longer be the monopoly of educational institutions; 3) a greater integration of educational institutions between themselves and with various sections of society; 4) making education a social obligation; B. Educational methodology - 1) emphasis on self-learning by imparting self-educational skills and producing self-learning material; 2) overshadowing of class-room pattern of education by a more varied pattern; C. Educational organization - organizations should be of five types- 1) organizations within various vocational sectors of society to look after the basic and continued education of the manpower they represent; 2) organizations to undertake research in the production of prototype instructional material; 3) a wide-spread library organization; 4) a unit within government to consider the inter-sectoral and overall problems of promoting life-long education; 5) voluntary organizations within the orbit of a universal adult education association to popularize education.

CORRESPONDENCE COURSES

484 **SHUKLA M C:** Higher education through correspondence. University News 1968, 6(5), 12-14.

Describes the correspondence course initiated in 1962 as a pilot project by the Delhi University and accorded permanent recognition by the University Grants Commission. The subjects covered by the course are: 1) English; 2) Hindi; and 3) two of the following elective subjects: economics, history, political science, commerce, mathematics, and Sanskrit. The entire syllabus for one paper of a subject is divided into approximately 30 lessons, each lesson being equivalent to one week's teaching work in the classroom. Two such lessons are mailed to students every fortnight. Besides, personal contact is maintained through a central programme in Delhi for three weeks in May attended by students from all over the country, regional contact programmes in Chandigarh, Allahabad, Jaipur and Madras, Sunday classes for students residing in and around Delhi, and talks broadcast from the Delhi and Madras stations of All India Radio three times a week. A comparison of the results of the correspondence course and the regular college course over a period of five years revealed no difference in pass percentage. The onrolment increased from 1112 in 1962 to 3450 in 1967.

COURSES OF STUDY (Higher Education)

485 Area studies in universities - UGC has no policy. Times of India 4 June 1968, p.8, cols. 7-8, p.9, cols.4-5.

Presents a critical review of the programme of area studies in Universities initiated by the University Grants Commission in accordance with the recommendation of a Committee appointed in 1963. The role of the Indian School of International Studies (ISIS) in promoting area studies during the last 25 years has been commended. The failure of the U.G.C. programme has been attributed to the following causes: 1) allotment of areas to universities was not based on objective and rational considerations. For example, the Delhi University duplicates Chinese studies already in existence in ISIS because of the financial assistance offered by the Ford Foundation; 2) the Commission did not make any arrangement for training specialists, and so unqualified persons were appointed as teachers; 3) programmes were introduced without making arrangement for adequate library facilities. On the other hand, the Delhi University was permitted to duplicate the material of some countries already available in the ISIS Library; 4) the Commission failed to recognize the resistance of traditional disciplines in universities to the promotion of area studies. Attempts are now being made to bring various area studies into the traditional departments.

486 DEB A: Engineering education. Journal of the Association of Engineers 1968, 43(1-2), 3-5.

The following are some of the anomalies of engineering education: 1) while a student taking three-year course in the technical stream of higher secondary schools is eligible for admission to the engineering degree course, students of the three-year course from junior technical schools do not get similar opportunities. Equalization of the two courses has been recommended; 2) opportunities should be provided to students of Industrial Training Institutes to appear for degree examinations as external candidates; 3) seats in degree courses should be ensured for students of technical stream of higher secondary schools. Generally students from science stream get preference; 4) parallel training institutions by public and private sector Industries should be discouraged since it reduces the employment opportunities of engineering graduates. Instead industry should recruit students passed from engineering schools and colleges and give them intensive in-plant training; 5) no distinction should be made between engineers possessing university degree and those possessing comparable degree awarded by the Institution of Engineers; 6) Indian Institutes of Technology should conduct only postgraduate courses; 7) the function of three government agencies involved in engineering education, viz., All India Council for Technical Education, India Society for Engineering Education, and National Council for Training in Vocational Trades should be integrated; 8) engineering education policy should be a concurrent subject.

487 DHAR K L: Pre-University English. Teaching 1968, 40(3), 86-9.

Since several State governments had decided to make English as optional subject at the secondary school stage, the following suggestions have been made to improve English teaching at the pre-university level: 1) the generalaim of the course should be the development of expression and comprehension in English. To attain this objective the needs are: a) comprehension of general and special reading material; b) expansion of students' vocabulary, both general and special; c) training in spoken English wherever possible; d) training in writing English for practical purposes; 2) preparation of vocabulary lists and structures; 3) designing of courses, textbooks, and other teaching material, keeping in view the purpose of teaching; 4) compiling anthologies of writings on science, the arts and the humanities, preferably chosen from modern English; 5) special pre-service and in-service courses for teachers who use the English medium; 6) orienting in-service college teachers in the aims, methods and techniques of teaching English as a foreign language; 7) inclusion of a paper on methods of teaching English in M.A. (English) course to help prospective teachers; 8) introduction of suitable oral tests; 9) using group work techniques as effective method of teaching; 10) laying stress on remedial teaching; 11) liberal use of audio-visual aids for teaching.

488 INDIA. RESERVE BANK. WORKING GROUP ON TRAINING FACILITIES FOR SENIOR AND MIDDLE LEVEL PERSONNEL OF COMMERCIAL BANKS: Report on the training and development of higher banking personnel. Bombay, the Bank, 1968. 103p. (Mimeographed) [Chairman: B.N. Adarkar].

Chapter 2 discusses the general considerations regarding the educational aspects of banking personnel. Chapter 3 analyzes the existing training facilities, their scale and nature and shortcomings. On the basis of the gaps identified a detailed scheme is given for organizing overall training which would inculcate the various social objectives of banking. Chapter IV - some of the salient features of the recommendations are: 1) a two-tier training structure should be introduced: (a) a central agency (National Institute of Bank Management) to initiate and coordinate measures for the profession at the highest level; (b) all other training institutions which provide training at the junior officer and clerical levels. The proposed institute should be responsible for the formulation of broad strategy of education, training and research programmes and for effective implementation of national banking policies; the activities include: (a) orientation and appreciation programmes; (b) integral programmes in management skills; (c) functional programmes; (d) research activities; (e) guidance to individual banks;

(f) collection and dissemination of information on bank management. The institute should have an independent status with a governing board for its management, academic programmes being handled by a faculty council. The cost should be borne by Reserve Bank, Union Government, State Bank of India, and other commercial banks; 2) the existing training institutions of commercial banks should be strengthened and expanded to meet the training needs of a large number of junior officers of their own banks and also of smaller banks with no independent training institutes of their own; 3) Indian Institute of Bankers should introduce a system of correspondence courses to improve the standard of performance of the candidates taking the examination of the Institute; 4) foreign banks should also make arrangements for training their officers.

489 INDIA. UNIVERSITY GRANTS COMMISSION: Report of the Assessment Committee to the Centre of Advanced Study in Philosphy, Banaras Hindu University. (In India. Lok Sabha. Estimates Committee (1967-68). Fortysixth report (Fourth Lok Sabha). New Delhi, Lok Sabha Secretariat, 1968, 54-9).

The Committee was appointed in 1965 to assess the activities of the Centre which was set up for the intensive study of classical Indian and Western philosophical work. The following suggestions have been made: 1) there is duplication of work and research efforts between the Centre and the College of Indology of the University. Closer co-operation between the two departments should be established; 2) the Centre should function as an all-India centre by attracting scholars from different universities; 3) it should not publish material unconnected with its research programme; 4) the field of Comparative Religion has not been properly developed, although there is a demand for this subject in the College of Indology. If the subject has to be developed in the Centre, some more permanent staff should be recruited and at least one-third of the total number of fellowships should be earmarked for the subject; 5) this Centre and the other two Centres at Visva-Bharati and Madras should concentrate on specific field of activities.

490 KUSUMAKAR H: Aeronautical education - rapid growth noted. Times of India 25 May 1968, p.8, cols.7-8.

Presents a report of the "Seminar on Aeronautical Education" organized by the Aeronautical Department of the Indian Institute of Science (Bangalore) and the Aeronautical Society of India. The following points emerged out of the Seminar: 1) institutions offering courses in aeronautics are: (a) Indian Institute of Technology (five-year integrated course, aeronautics being introduced in the fourth year), (b) Madras Institute of

Technology (three-year course), (c) professional examination conducted by the Aeronautical Society of India, (d) special in-service course conducted by Indian Air Force for mechanical, electrical and electronic engineers, and (e) Indian Institute of Science; 2) introduction of a course at the diploma level. Aeronautical engineering graduates are now employed in jobs which can be done by job-oriented diploma holders; 3) the percentage of aeronautical engineers to all engineers, which is less than ½%, should be increased to 3%; 4) a drawback in the system of education at the graduate level is the emphasis on theory rather than practical knowledge, although opinion varies; 5) in spite of limited scope of employment, the demand for the course is increasing; 6) the average time per week spent by students on studies including class work is about 75 hours.

491 MAKHIJA H R: Training for community development personnel in India. New Delhi, Indian Institute of Public Administration, 1968. xiv, 170p.

Part 1 traces the origin and growth of the training programme leading to the establishment of different types of training institutes and the arrangements made for their supervision and management. Part 2 deals with various problems encountered and steps evolved for their solution through trial and error. The problems relate to trainees and trainers, training capacity and problems of underutilization, and strengthening the training programme by orienting it to field conditions. Part 3 discusses the steps taken for the attainment of excellence. It covers the changing pattern of training for village level workers, social education organizers and Block Development Officers, revised pattern of refresher courses, and study, research and training of trainors. In the concluding part an attempt has been made to assess achievement in relation to the goal of the programme. Some observations have also been made on the future pattern of the programme in which the stress is on refresher courses and ad-hoc courses for certain categories of personnel.

492 MITHAL B M: Pharmaceutical education and its future. Eastern Pharmacist 1968, 11(124), 59-60.

Since a large majority of the graduates in pharmacy join the industry, a plea has been made to orient graduate programmes in the various universities to industry and to lay considerable stress on manufacturing pharmacy. However, dispensing or other related aspects should not be ignored. In accordance with the prevalent conditions in the industry, special stress should be laid on the following topics: 1) quality control including a course in instrumentation; 2) pharmaceutical formulation;

3) manufacturing principles on processes; 4) pharmaceutical engineering; and 5) pharmacology.

493 MODY R K: Present and future trends of technological training and research. Indian Textile Journal 1968, 78(930), 226-9, 247.

Presents an account of the educational activities of the Victoria Jubilee Technical Institute (Bombay University) founded in 1887. The Institute provides courses at diploma as well as at degree and postgraduate levels in the major branches of mechanical, electrical, civil and sanitary engineering, textile technology, and industrial and technical chemistry. Other activities are: 1) a full-time course on co-operative basis in production engineering; 2) in-service training leading to a higher diploma in industrial engineering and a certificate in foremanship and supervision; 3) training programmes for senior polytechnic teachers; 4) short-term course of a refresher-cum-basic type in the areas of water supply, public health engineering, foundry technology, forging and heat treatment, spinning, automatic weaving and dyeing. An account has also been given of the research projects in various fields currently in progress with special reference to textile research and research projects sponsored by co-operative research organizations in the textile industry.

494 NIKORE R L: Reorientation of teaching of pharmaceutical microbiology. Indian Journal of Pharmaceutical Education 1968, 2(1), 31-4.

The present curriculum in microbiology in the pharmaceutical course with about 60 lectures in theory and practical work of 120 hours is inadequate. The following suggestions have, therefore, been made: 1) introduction of two courses - fundamentals of microbiology, and industrial applications of microbiology - each of one-year duration; 2) fundamental microbiology should cover aspects like morphology, reproduction and growth, physiology of microbes, isolation, identification and classification of bacteria, fungi, protozoa, and viruses: 40 lectures and 60 hours of experimental work should be devoted for this course; 3) course on applied microbiology should be split into two parts: (a) pharmaceutical microbiology, and (b) industrial microbiology. The former should cover physical and chemical methods of sterilization, aseptic techniques, detailed study of resistance and immunity, biological standardization of antibiotics, vitamins and hormones, and microbiology of water and sewage. Industrial microbiology should include the production of various materials, such as lactic acid, citric acid, alcohols, certain enzymes, antibiotics. Sixty lectures on theory and 60 hours of practical work have been suggested. Two lists of experiments in fundamental and applied microbiology have been given.

495 **RAMALINGASWAMI V:** Factors influencing the development of medical curriculum. Indian Journal of Medical Education 1968, 7(3), 312-17.

Curriculum is a dynamic phenomenon which evolves continuously with experience. It is not merely course content, but a series of educational experiences that facilitate learning and lead toward the fulfilment of clearly defined educational objectives. The objectives must be attainable, realistic and related to local health needs, matrix of local society, nature of student body, number and quality of the faculty and to the available physical facilities. The pursuit of excellence should be a common denominator of all curricula irrespective of the country for which they are designed.

496 **REUBEN S S:** Architectural education in India. Journal of the Indian Institute of Architecture 1968, Golden Jubilee Number, 74-82.

The history of architectural education in India has been traced since the inception of Bombay School of Architecture in 1896 and the impact of the Royal Institute of British Architects on the educational pattern has been discussed. The Bombay school is the only Asian institution recognised by the Royal Institute. The present pattern of education in universities and schools of architecture is largely guided by the India Board of Technical Studies in Architecture and Regional Planning of the All India Council for Technical Education. It conducts an examination leading to National Diploma in Architecture, and an intermediate level examination. The standard of the Diploma is equivalent to degree courses. At present 9 universities provide training at the degree level, 9 institutions at the diploma level, one each at intermediate and postgraduate levels.

497 **SETHI D P:** Social work curricula in India. Social Welfare 1968, 15(1), 6-8, 15.

An analysis of the curricula of different schools offering two-year courses reveals a common pattern. The curricula are composed of three major components - theory, field work, and research projects. Theoretical portion is broadly divided into three parts - background subjects, social work, theory and methods, and specialization. Field work placements are of two types: 1) method-oriented and 2) field-oriented. During the field work students study the functioning of the agency, and participate in its current programmes. Research projects serve three main purposes: 1) training students in conducting research; 2) addition to the general body of knowledge, and 3) utilization of research material by agencies and schools of social work. The following problems have been isolated:

1) no consensus of opinion on the desirability of having specialization courses in social work curriculum; 2) lack of adequate number of agencies which can provide the right type of practical experience during the field work; 3) the standard of the agency practices lagging behind the standards of classroom instruction; 4) inadequate opportunities for students to participate in the current programme of the agencies; 5) lack of supervision in field work; and 4) selection of appropriate topics for research projects.

498 Teaching of social sciences in India (1947-67): Delhi, Universal Book & Stationery Co., 1968. 727p.

Presents a comprehensive survey of the state of university education and teaching in respect of the various disciplines in the social sciences. The first part contains 7 chapters written by specialists on the following disciplines: 1) economics; 2) political sciences; 3) international relations; 4) sociology; 5) social psychology; 6) social anthropology and law. Besides, one chapter discusses the structure of university education. The first part of the survey covers the period up to 1956. The 2nd part brings the information up to 1967 and deals with the following disciplines: 1) political sciences - law, history, political science, international relations, and public administration; 2) psychological sciences - psychology, and social psychology 3) socio-cultural sciences - sociology, social work, criminology, industrial sociology, anthropology, and social anthropology; 4) economic sciences - economics, commerce, business administration, and geography; 5) statistical sciences - statistics, and demography. Each article analyzes the syllabus and discusses the organization and methods of teaching and research. In the second part, there is also a general section dealing with the progress and structure of university education, admissions, media of instruction, examinations, teachers' salaries student unrest and scholarships. Another chapter discusses the research methodology in social sciences.

499 WORLD CONFERENCE ON MEDICAL EDUCATION, 3RD, NEW DELHI, 1966: Medical education in the service of mankind - proceedings of the conference. Indian Journal of Medical Education 1968, 7(3), xv, 211-419.

The proceedings consisting of 17 addresses are presented in 6 sections: 1) conference theme: medical education - factor in socio-economic development (4 addresses); 2) seminar topic 1: social change and scientific advance - their relation to medical education (2 addresses); 3) topic 2: medical education and the national structure (2 addresses); 4) topic 3: organization of medical education to meet the changing needs of society (2 addresses); 5) topic 4: planning new programmes in medical education (2 addresses); 6) final seminar reports summarizing the discussion of the four topics and the final address (5 addresses).

500 YOGENDRA SINGH, UPRETI H C: Note on a comparative study of the syllabi of selected universities. (In Unnithan T K N, Yogendra Singh, Singhi N, Deva I, Eds. Sociology in India. New Delhi, Prentice Hall of India, 1967. 197-200).

A review of postgraduate courses in sociology of 14 universities reveals the following important points: 1) there is agreement on the need for studying the historical background and development of sociology along with abstract sociological concepts; 2) although there is an awareness of the need for training in research methods and field techniques there is not even an elementary course in statistical techniques; 3) a notable feature is that most of the departments have some courses in rural and urban sociology, social disorganization and social anthropology, through which the concepts of sociology taught in courses on general sociology or principles of sociology could be tested and applied to social reality; 4) differences exist in courses like sociology of religion, politics, knowledge, education, language, art, myth, Hindu social theory etc. which are taught in an isolated manner in various universities. These differences indicate the variation in orientation of teachers, departments, and their specific conception about the future of sociology. A model course has been suggested.

CURRICULUM

501 GAOKAR H D: Work experience. Maharashtra Educational Journal 1968, 16(9), 245-51.

Work experience can be introduced in schools through activities related to home life, using some inexpensive equipment. They may be in the form of repair work of house-hold articles. A list of 50 such activities relating to wood work, metal work, electricity, handicraft, and food has been given. The school can select a few important items from each category suited to the local conditions and prepare standard-wise work experience programme. Scientific understanding required for the job should, however, be provided first and whenever necessary additional scientific theoretical knowledge can be given. But the emphasis should be on imparting practical skills and the efficient handling of simple tools. One set of inexpensive tools may be shared by two or three students. Normal classroom with minor readjustments can serve as a workshop. To make work experience programmes successful, teachers should be given appropriate training in polytechnics and in training colleges for handicraft teachers. State boards of secondary education should draw up syllabi for work experience and a list of the equipment required. Each school should make a modest beginning immediately.

502 JOSHI D C: Curriculum at the lower secondary stage - a critical appraisal. Rajasthan Board Journal of Education 1968, 4(2), 47-52.

The following recommendations of the Education Commission concerning the curriculum have been criticized: 1) compulsory study of English; 2) abolition of general science course and replacing it by compulsory study of science as a discipline - All students may not have the necessary aptitude to learn science. Lack of qualified teachers and lack of equipment are other problems; 3) discarding integrated social studies and introducing history, geography and civics as separate disciplines; 4) postponment of specialization to Class XI - The programme of specialization should be introduced in Class IX; 5) introduction of work experience and social work programme - Providing opportunities for work experience to every student may pose a big problem. Relating work experience to the subjects of studies has, however been suggested. The following broad framework of a curriculum for IX and X classes has been suggested: 1) Hindi and a modern Indian language; 2) mathematics or home science (for girls only); 3) social studies (for science students), ang general science (for students of humanities); 4) specialization - three subjects under each group. English may be one of the optionals; 5) moral and spiritual education; 6) physical education; 7) hobbies relating to art, social and national service, work experience - The hobbies may be selective and the last three items need not be included in public examinations.

503 MATHUR V S: Geography in secondary schools. Teaching 1968, 40(3), 77-82.

The following suggestions have been made: 1) geography should be made an independent compulsory subject from Class V onwards and not part of an integrated course in social studies; 2) the course should attempt to describe human activity in selected parts of the world in relation to the major features of the physical environment and to demonstrate the inter-dependence of the people of the world and the resulting social implications; 3) selection of regions of the world should be based on certain characteristics like national heritage, industrial and economic relationship, geographical proximity. Some form of sampling may be adopted for this purpose; 4) the syllabus should take into consideration the environment and interests of pupils and also the inclinations and abilities of teachers. Teaching methods suggested are: 1) pupil-centred teaching taking into consideration the interest and physical and mental activity of pupils; 2) purposeful visits to places of geographical interests; 3) visits to local factories and acquainting students with types and sources of raw materials, means of transport, and the destination of products; 4) extensive study of local environment. The role of teachers in this connection has also been discussed.

504 MODAK U: Should formal sex education be given to the younger generation? Journal of the Indian Medical Profession 1968, 15(1), 6432-4.

The need for imparting formal sex education with a focus on right attitudes has been highlighted. Although sex education should begin in the home, it should be supplemented by a carefully planned education in schools and colleges. It should not form an additional discipline for study but should be integrated with the entire school curriculum. In the nursery and infant schools systematic sex instruction may not be given, but the children should be satisfied with suitable answers to their queries. In the junior years, instruction on sex and reproduction can be given in the nature study lessons, which should serve as a stepping stone to the teaching of fertilization and embryo development and protection of the growing embryo, etc. In the secondary schools, formal sex instruction and facts of reproduction should be given in physiology or biology lessons. Teaching should aim not only at providing sex instruction but should also involve the moral element desirable from a personal and social point of view.

505 NAYYER S M: How to improve the secondary school curriculum. Teaching 1968, 40(3), 82-5.

The following suggestions have been made: 1) classroom teachers should be involved in active research for upgrading the secondary school curriculum in different subjects. Since teachers possess the experience of classroom situations, their performance would be better than that of inexperienced research workers; 2) activities of different agencies engaged in educational research should be coordinated to avoid duplication and for better utilization of research results for the improvement and enrichment of curriculum; 3) state education departments should only provide a broad framework and the curriculum committees should work out the details taking into consideration the local variations; 4) schools interested in the enrichment of the prescribed curricula through experiments, should be provided necessary help and encouragement; 5) state boards of education should provide examinations for students who take advanced courses based on enriched curricula; 6) subject teachers associations should be formed for planning constructive programmes for reorganizing the curricula in their subjects.

EDUCATION : GENERAL

506 **INDIA. CENTRAL ADVISORY BOARD OF EDUCATION:** Proceedings of the thirtythird meeting held at New Delhi in August 1967. Delhi, Manager of Publications, 1968. 189p.

The Board considered the reports of 1) Education Commission; 2) Committee of Members of Parliament on Education; and 3) Standing Committees on School and Social Education, Higher Education, and Educational Administration, Finance and Implementation. The major discussion was on the draft statement on the National Policy on Education. Discussions on the draft cover the following aspects: 1) transformation of educational system; 2) strengthening national unity; 3) neighbourhood school; 4) science education and research; 5) education for agriculture and industry; 6) work experience; 7) character formation; 8) equalization of educational opportunities; 9) pre-primary education and primary education; 10) ten-year school; 11) higher secondary education and higher education; 12) part-time and own-time education; 13) education of girls; and 14) language policy. The appendices contain the resolution of the State Education Ministers' Conference (April, 1967) on the structure of the educational system, and reports of the Standing Committees.

507 **INDIA. STATE EDUCATION MINISTERS' CONFERENCE, 10TH, 1967:** Proceedings. New Delhi, Ministry of Education, 1968, 64p.

The proceedings contain 6 chapters: 1) inaugural address by the Prime Minister, and addresses by the Union Education Minister and the Deputy Prime Minister; 2) general discussions; 3) discussions on teachers' status and education; 4) discussions on language policy; 5) discussions on National Cadet Corps; 6) resolutions adopted, and concluding remarks of the Education Minister. The following 12 resolutions were adopted: 1) introduction of the neighbourhood school system at the primary stage from 1968-69; 2) immediate adoption of the programme of work experience as an integral part of general education in some selected schools and extension of the programme to cover all institutions in about 10 years; 3) adoption of regional languages as media of instruction in all institutions of higher education within five years. All India Institutions, however, should use Hindi and English; 4) central assistance to States (in the proportion of 90:10) to implement the recommendations of the Education Commission to improve the remuneration of teachers; 5) constitution of joint teachers' council to deal with the problems relating to the conditions of work and service and education; 6) priorities at different stages of education; 7) adoption of educational structure having the following pattern: a) ten-year high school stage; (b) two-year higher secondary stage; and (c) two-year first degree stage (or three-year honours degree stage); 8) implementation of programmes which do not need large scale investment; 9) making National Cadet Corps and National Service Corps programmes alternative to each other; 10) review of the existing Centre-State relationship in financing education; 11) introduction of moral instruction at all stages of education; 12) appointment of a committee to discuss the question of language - studies at the school stage.

508 INDIA. NATIONAL INTEGRATION COUNCIL: Educational aspects. Hindustan Times Weekly 23 June 1968, p.11, cols.1-3. 915 words.

The following recommendations have been made by the Council: 1) education from the primary to the postgraduate stage should be re-oriented to inculcate in students a sense of Indianness, unity and solidarity, and faith in the basic postulates of Indian democracy, and to help the nation to create a modern society out of the present traditional one. The State Governments should appoint expert committees to organize the preparation of suitable textbooks and a national board of the Union government should coordinate such efforts; 3) regional imbalances in the provision of educational facilities should be rectified; 4) good educational facilities should be provided in rural and other backward areas; the gap between the standard of education in general schools and schools providing education of quality should be narrowed down; 6) the common school system as recommended by the Education Commission should be introduced in all states from 1969; 7) no domicile certificate should be necessary for admission of students from one state into institutions in another state; 8) scholarships should be provided by UGC to enable meritorious students to go from one state to another for higher education; 9) inter-university meets should be organised for the furtherance of national integration; 10) university campuses should not be used for any communal or any sectarian purposes.

509 MAHARASHTRA: White Paper on education. Maharashtra Educational Journal 1968, 16(9), 256-9; Educational reconstruction in Maharashtra NIE Journal 1968, 2(5), 23-5.

A White Paper outlining a programme of educational reconstruction for the next 15-20 years based on the recommendations of the Education Commission has been issued by the Govt. of

Maharashtra to elicit public opinion. The objectives of the programme are: 1) to bring the educational system closer to the life, needs and aspirations of the people; 2) improving standards; 3) discovering and developing talent; 4) creating greater educational opportunities. Some of the salient features are: 1) reorganization of the curriculum to deepen national conscience; 2) stress on science, mathematics, work experience, and art education; 3) mother tongue as the medium of instruction in Classes I-IV and study of Hindi as compulsory additional language in Classes V-VII (English being optional), compulsory study of three languages (including English) in Classes VIII-X; 4) development of the regional language and its adoption as general medium of instruction subject to the provision of safeguards for linguistic minorities; 5) phased adoption of the following reorganized pattern of educational structure: a) the ten-year school programme with a uniform curriculum from 1972-73; b) two-year higher secondary course by 1974-75; c) revised three-year degree courses based on the new school system from 1975-76; d) production of the first batch of graduates at the end of 1977-78. Other aspects covered are: 1) improving the quality of textbooks; 2) preparing literature to facilitate the adoption of the regional language at the university stage; 3) development of library service; 4) improving general education; 5) improving the quality of teacher education and status of teachers; 6) development of educational plans by Zilla Parishads; 7) adoption of a comprehensive programme of youth welfare; 8) vocational courses at the higher secondary stage, terminal in nature; 9) provision for correspondence courses and external examinations; 10) modernizing university acts; 11) education of girls and backward classes and handicapped children; 12) relating education from class X to the manpower needs; 13) reconstitution of the State Council of Education.

510 Review of educational development from 1951-52 to 1968-69: Education Quarterly 1968, 19(1), 1-65.

Covers 18 years during which India's economic planning has been in operation. First three articles are extracts from programmes of educational development proposed in the three successive plans, followed by a review of achievements, by j.P. Naik. The following points have been highlighted 1) enrolment increased from 24 million in 1950 to 27 million in 1965 (annual growth 7.4%); 2) development helped in creating an evenly balanced economy; 3) expansion at the postgraduate level has been spectacular (11.2% per year); 4) expansion was slower than expected at the primary stage and also in the vocational and professional sector but targets were exceeded in the secondary and undergraduate sectors, creating several problems; 5) sharp inequalities of educational opportunities were considerably reduced; 6) although the present situation in respect of educational standard is unsatisfactory, there has been considerable improvement in several sectors; 8) educational expenditure at current price increased from Rs.1,444 million in 1950 to Rs.6,000 million in 1965 (11.7% per year). The expenditure on all sectors of higher education increased rapidly. Another article gives an extract from the draft Fourth Five Year Plan (1966-67 to 1970-71) which was not implemented [see IEM V.1 Abstract No. 998]. The last article presents a review of educational development in the States during three annual plans, (1966-67, 1967-68 and 1968-69), Each article contains extensive statistical data.

EDUCATIONAL PSYCHOLOGY

511 DEB S, RAY T: Nature of consistency between scores of two different performance tests in normal and subnormals. Psychological Studies 1968, 13(1), 16-20. 8 ref.

The study aims at testing the two propositions: 1) consistency of two standard performance test-scores by subnormal group is lower than that by normal group, and; 2) there is a graded increase in consistency between two performance test-scores in normal group, whereas this may not happen in the subnormal group. The subjects were a sample of 60 subnormals (1.Qs 20-89) and 60 normals (1.Qs 90-140), each group being further divided into 3 subgroups on the basis of graded 1.Qs. Terman-Merill individual intelligence scale (1937 revision) was used to categorize the subjects through graded 1.Qs (verbal 1.Qs). Alexander's Pass Along test (P.A.) and Dearborn's Form Board test (F.B.) were administered individually to the respective subgroups. The data were treated separately with the total group and with different subgroups. Significance, if any, of the difference between and within group means was tested. Co-efficients of correlation between scores of P.A. tests and F.B. tests were then computed once with the total groups of normal and subnormal and then with the different subgroups. The results supported the propositions.

512 JOSHI J N, PASSI B K: Role of intelligence and levels of instruction on the development of numerical ability in pupils at the junior secondary stage. Journal of Psychological Researches 1968, 12(2), 57-62. 7 ref.

The study was conducted on a sample of 45, 50 and 45 pupils reading in the 6th, 7th and 8th grade respectively. The sample represented boys and girls from both rural and urban areas. The tools employed were: 1) general mental ability test (Hundal, P.S. Thesis. Punjab University. 1963);

2) numerical ability test in Hindi related to the basic concepts involved in the learning of arithmetic developed by the authors. The conclusions were: 1) intelligence and numerical ability were positively and significantly corelated at all levels of instruction taken individually as well as collectively; 2) the levels of instruction had significant effect on the development of numerical ability; 3) the development of numerical ability was noticeable from the lower level of instruction to the higher level; 4) there were definite stages in the development of numerical ability, i.e., at each higher grade some new concepts and operations were learnt, besides those which had already emerged in the previous grade.

513 **MALHOTRA M K:** Socio-cultural and personality maladjustment. Educational Forum 1968, 13(1), 23-33.

A socio-cultural questionnaire prepared by the author and Thurstone's personality schedule were administered to 102 students of Central Institute of Education, Delhi. The subjects were divided into different classes on the basis of their responses to the questionnaire. The scores obtained on Thurstone's personality schedule for each of the different classes of subjects were calculated separately and compared with each other, or the correlations between the number of subjects falling under different personality groups on the schedule were calculated. The findings are: 1) women had significantly higher scores of personality maladjustment than men; 2) Christians scored highest on Thurstone's schedule and Sikhs the least; 3) communism attracted the most maladjusted personalities while the subjects subscribing to democratic political ideologies were least maladjusted; 4) subjects of lower social status had higher personality maladjustments; 5) the most maladjusted subjects had less cultural and social contacts with the outer world.

514 **MUTHAYYA B C:** Certain personal data and their relation to level of aspiration. Psychology Annual 1968, 2, 1-8. 7 ref.

A sample of 153 boys and 99 girls studying in classes IX-XI (age group 13-17) in local schools of Madras and Coorg were subjected to the study. Three performance tests (level of aspiration board, finger dexterity, and card sorting) and three non-performance tests (letter cancellation, symbol-digit substitution, and compulsion test) were used. Goal discrepancy score (GDS) was used as measure of level of aspiration. The findings are: 1) parent's education helps in developing a realistic level of aspiration; 2) students having professional fathers are more realistic in setting their aspiration than the other groups; 3) students belonging to lower economic group are more unrealistic than those belonging to higher economic group; 4) the smaller the size of the family the greater is the level of unrealistic aspiration of students; 5) the last born child is more unrealistic in his level of aspiration behaviour than the middle born and the latter in turn is more unrealistic than the first born; 6) rural children are more unrealistic than the urban group; 7) children with past failure have a higher mean GDS than subjects with past success; 8) boys are more realistic than girls.

515 MYTHILI S P: Paired-associates learning and recall of short and long stimulus lists. Journal of the Indian Academy of Applied Psychology 1968, 5(2), 57-60.

The experiment was designed to test the hypothesis that delayed record is better for a long stimulus list. Twenty nonsense syllables taken from Glaze's list (Journal of Genetic Psychology 1928, 35, 255) constituted the stimulus material. The associative value was 00.00%. Twenty nouns of one syllable were used as response items. Two groups with 16 undergraduate women students in each were subjected to this study. The criterion of learning was fixed at 60% of correct recall. Delayed recall was tested after one week. The results showed a significant difference between the two groups in that the delayed recall test showed better recall of the long lists.

516 NATARAJ P: Adjustment of adolescent college girls. Psychological Studies 1968, 13(1), 60-3. 3 ref.

Bell's adjustment inventory (Manual of the adjustment inventory - student form. Stanford University Press, 1934) was used to study the extent to which adolescent college girls, subjected to stresses and strains of that phase of life, are adjusted to different aspects of environment. A group of 300 college girls studying in undergraduate classes of two women's colleges in Mysore State was subjected to the study. The scores were classified age-wise (17,18,19,20 years) and class-wise (1st, 2nd and 3rd year) and the mean adjustment scores and SD were computed for each group and each phase of adjustment. Another group of adjusted (185) and maladjusted (53) subjects was selected by administering Maudsley Medical Questionnaire and the adjustment scores on Bell's inventory were compared and CR for the mean difference was computed. The conclusions are: 1) all the 4 age groups indicated moderate home, health and social adjustments, while their emotional and general adjustments were unsatisfactory; 2) the third year students were moderately adjusted. Second year students are unsatisfactorily adjusted. Second year students are unsatisfactorily adjusted to home,social and emotional environment. The first year group and the total group indicated unsatisfactory emotional adjustment; 3) the adjusted and the maladjusted groups differed widely (significant beyond 0.01 level).

517 SHARMA M L: Front-benchers and back-benchers - an explanatory study in psychometrics. Rajasthan Board Journal of Education 1968, 4(2), 36-41.

A total of 66 students - 31 'front-benchers' (who usually sit on front benches in the class room), and 35 'back-benchers' (who usually occupy the benches lying at the farthest end) reading in Class VIII of three different schools in Sardarshar town of Rajasthan. The tools used were group test of general mental abiliy, a personality inventory, Hindi version of the Mooney's problem check list, a sociometric test, and examination marks. Some of the findings are: 1) according to the teachers, the front-benchers were of studious habits, intelligent, good-natured, curious to learn, disciplined, and good at home work. On the other hand the back-benchers were mischievous, weak in studies, disinterested in school and home work, quarrelsome, indisciplined, truant, and delinquent. However, in both the groups, there are exceptions also; 2) in general, front-benchers have higher IQ; 3) in sociometric status front-benchers were substantively higher, on the average front-benchers had superior academic achievements.

518 SINHA J B P, LAKSHMI A: Learning as a function of demand characteristics and dependency. Psychological Studies 1968, 13(1), 55-9, 5 ref.

A study was conducted in which the performance on a learning task and on an intelligence test were examined for two levels of dependency (high and low) and under three - high, medium, and low - conditions of demand (expectation for excellence). Each condition had ten subjects thus making a sample of 60 subjects. Results revealed that demand condition was a significant factor which favourably affected the learning scores and unfavourably affected the intelligence scores. There was a trend, although not significant, regarding the effects of dependency which was contrary to the findings of Ross (Journal of Personality and Social Psychology 1966, 4, 374).

519 **PALSANE M N:** Varieties of research in education. Journal of Education and Psychology 1968, 26(1), 87-91.

A study has been made of the various ways of classifying educational research and it has been pointed out that the selection of a system would depend largely on the purpose for which it is to be adopted. The following categories of education research have been suggested on the basis of methods and approaches of study: 1) historical research which utilizes historical sources like documents, remains, etc. to study events or ideas of the past including the philosophy of persons and groups; 2) descriptive research which includes surveys and fact-finding enquiries of different kinds; 3) experimental research which is characterized by the experimenter's control over the variables under study and his deliberate manipulation of one of them to study its effects; 4) clinical or diagnostic research which follows case-study methods or depth approaches to reach the basic causal relations. Research could further be classified in terms of the area of study e.g. different stages of education (primary, secondary etc.) and different categories of education (technical, vocational, education of exceptional children).

520 **ROY P C:** Research and training in education - role of N.C.E.R.T. Yojana 1968, 12(12), 11-13.

Describes the major activities of the National Council of Educational Research and Training in the following categories: 1) research; 2) [illegible]ng (pre-service and in-service); 3) extension work; 4) science education, and 5) production of educational literature. Besides working on its own, NCERT undertakes research in collaboration with other bodies and provides financial assistance to different institutes conducting research in education. The recent research programme runs into 32 items, of which study on student unrest and historical survey of the language controversy are of topical interest. Some projects of interest to the educational planners and administrators are: 1) wastage and stagnation during and after elementary teacher education course; 2) administrative organization of educational system in different States, and 3) a national survey of teacher training institutions at secondary and primary levels.

521 SAMANT D G: Education research. Progress of Education 1968, 42(9), 330-1.

Some confusion appears to exist in the minds of students of education with regard to the scope and utility of educational research. Educational research pre-supposes the existence of problems. Selecting a problem and defining it are the first two steps. The problem decided the nature of research and also the methods and techniques of investigation. Since educational system in India is undergoing reformation and reconstruction, a large number of problems exist in different fields. Such problems could be conveniently investigated for the improvement of the educational system. Some problems which need investigation are: 1) media of instruction; 2) teaching techniques; 3) administration; 4) testing and evaluation; 5) curriculum; 6) textbooks; and 7) theory of learning. Participation of teachers in educational research will not only raise the standards of education but also their professional status.

522 TRIVEDI R S: Role of teachers' college in educational research. Journal of Education and Psychology 1968, 26(1), 84-6.

The three major steps to be taken by teacher education colleges towards experimentation and research are: 1) revising and reconstructing the entire programme in tune with the new dimensions of the teaching profession; 2) organizing extension programmes which would help teachers in experimentation; 3) preparation of postgraduate students for undertaking experimentation. Therefore, the minimum programme towards experimentation and research for teachers' colleges should include: 1) orientation in experimentation and research; 2) training in defining a problem, formulating a hypothesis, collection and organization of data, formulating conclusions, proving or disproving the hypothesis; 3) 3) acquaintance with elementary statistics. In this context the need for improving the administrative and structural set-up of all educational institutions has been stressed.

EDUCATIONAL SOCIOLOGY

523 AHLUWALIA S P, BHARGAVA P N: Human relationship in the class-room - a study in sociometry. Journal of Educational Research and Extension 1968, 4(4), 136-44.

The study had the following objectives: 1) to study the human relationship patterns in a classroom; 2) to find the reasons for social acceptance and rejection among classmates;

3) to determine the relationship between social acceptance and correlates such as age, school marks, intelligence and also the five areas of personality adjustment (home, health, emotional, school and social). The subjects consisted of 70 boys (average age 15.1 years) of two sections of IX class. The tools used were: 1) sociometric test developed by the authors; 2) group test of mental ability (of Jalota); 3) personality inventory (of Saxena); and 4) marks obtained in the previous annual examination. The following are the conclusions: 1) Pupils have varying degrees of social acceptance and rejection; 2) there are a number of determinants for social acceptance or rejection of a pupil; 3) different classroom settings have varying patterns of group structure. Usually the indices of group cohesion, group interaction and group expansiveness differ in value for different groups on different criteria; 4) sociometric status appears to have some relationship with background factors such as religion and family size whereas father's income and occupation, ordinal position etc. bear no such relationship; 5) sociometric status is expected to have some sort of relationship with behavioural factors such as IQ, achievement and social adjustment and probably chronological age, and the various areas of personality adjustment bear no relationship.

524 BAXI H J: Findings of the survey to evaluate the attitudes, regarding "marriage age" of B.A. and M.A. students of Smt. N.C. Gandhi Mahila College, Bhavnagar (August-September, 1967). Journal of the Gujarat Research Society 1968, 30(2), 113-21.

Raising the marriage age as a measure to control the rising tide of population is being considered by the Govt. of India. A questionnaire was administered to 71 girl students. The following are the findings: 1) as regards the size of the family, 63 students favoured two or three children; 2) suggested methods to restrict the size of the family in order of preference: raising the marriage age (47), self-control (24), family planning (46), vasectomy (20), and spread of women's education (20); 3) 23 students do not believe that raising the marriage age will result in restricting the size of the family; 4) while 48 wanted an amendment of the existing law to raise the age of marriage, 20 favoured the continuance of the present law. It has been concluded that in addition to raising the age of marriage, the expansion of women's education will ultimately help in restricting the size of the family.

525 **RUHELA S P:** Sociology of education - a review of researches and priorities. Delhi, NCERT, 1967, 20p. 107 ref.

The survey has been presented in six sections. The first section attempts a brief historical retrospect giving the developments in the fields of educational sociology and sociology of education. The second section marks out the difference between the approaches of these two seemingly similar fields. The third section presents a review of the studies conducted and priorities spelt out in different areas of sociology of education in Western countries. The fourth section traces the development of the field in India and makes an assessment of the research work done. The followinging are some of the features: (a) of the 85 doctoral theses (1939-61), 12 fall within the field, (b) about 13.8% of the 2856 M.Ed. dissertations (upto 1961) deal with problems related to the field. However, most of them are simple opinion surveys without any theoretical or methodological sophistication, (c) 14 (upto 1964) belonged to the field, (d) most of the work has been done on the problems of college and university students. Suggestions for priorities in research have been given in the fifth section. The broad fields are: 1) aims of education; 2) allocation of material; 3) allocation of personnel; 4) roles of educators, students, administrators and parents; and 5) functions of socio-cultural pattern of the society. The need for undertaking studies in primary and secondary education has been stressed in the concluding section.

ELEMENTARY EDUCATION

526 **CHAKRABORTY J C:** Some thoughts on the introduction of free primary education in India. Bulletin of the West Bengal Headmasters Association 1968, 17(6), 265-7.

Successful implementation of the programme of universal primary education cannot be made merely by enacting some laws. Sustained campaign for the popularization of the programme is necessary. The following steps have been recommended for the success of such campaign: 1) well-planned campaign of twelve years' duration should be executed in stages; 2) besides the administrative machinery of the Education department, the services of the executive of the State Government and non-officials engaged in the field of education should be utilized. The Community Development staff have a big role in this matter; 3) "Primary Education Enforcement Fortnight" should be observed at the beginning of each stage during which an intensive campaign should be conducted.

527 TEWARI D D: Primary education in Uttar Pradesh. Allahabad, Ram Narayan Lal Beni Madho, 1967, xxxii, 532p. 166 ref.

The publication in 4 parts traces the development, administration and organisation of primary education in the States, highlights the causes that have led to the present situation and offers suggestions for improvement. The first part presents the geographical, economic and social background of the State for understanding the educational problems in a proper perspective. The second part discusses the organisation of primary education which covers the following aspects: 1) kinds of primary schools; 2) teachers - their status and service conditions; 3) enrolment, attendance, wastage and stagnation; 4) curriculum and textbooks; 5) examinations and evaluation; 6) school buildings and equipment. The third part deals with administration which includes: 1) inspection and control; 2) decentralization of administration; 3) finance; and 4) teacher education. Part four discusses the problems of universal free and compulsory education, primary education for girls, position of basic education, quantitative expansion and qualitative improvement. The findings have been summarized in Chapter 19. Thirtysix appendices give statistical data.

FINANCE

528 BALJIT SINGH: Approach to Union-State financial relations in India in the context of educational planning. (In Sharma G S, Ed. Educational planning - its legal and constitutional implications in India. Bombay, N.M. Tripathi Private Ltd., 1967. 19-38).

The constitutional provisions and the actual arrangements regarding the devolution of funds from the Centre to the States have been described. The following proposals relating to mobilization and allocation of larger resources have not been supported: 1) realignment of functions and resources by transferring education to the Concurrent List, centralizing of finances, and enlarging the central tax base for sharing by States; 2) division of responsibility between the Centre and the States for different levels of education; 3) unification of plan and non-plan grants; 4) specific-purpose grant for education. The major suggestions are: 1) continuation of education as a State subject and sharing the major responsibility for educational finance by State Governments; 2) continuation of the system of multiple finance of education. As an alternative to specific-purpose grant, a general-purpose grant has been proposed. However, such a grant should have the following features: 1) rationalizing the system of land revenue and sales tax to maximize resource mobilization at the State level; 2) supporting the existing dual financial assistance by a supplementary general-purpose grant; 3) levying 5% surcharge on all union taxes and a small surcharge on State taxes to find resources for the supplementary grant; 4) distribution of the supplementary grant on the basis of 5 variables: (a) population; (b) students in classes I-VIII; (c) backward class population; (d) share of net domestic product; and (e) unemployed graduates and postgraduates.

529 PADMANABHAN C B: Economic development and education - a model for Asia. Yojana 1968, 12(11), 21-3.

The following considerations should determine the expenditure on education in developing countries: 1) increasing the size of GNP rather than increasing the percentage of GNP for education, would result in a larger allocation of funds to education; 2) the same percentage of the GNP on education can be obtained either with a small public sector, the bulk of it being spent on education, or with a big public sector devoting a small portion of it to education. It is, therefore, necessary to take into account the size of the public sector itself; 3) it would be inadvisable to aim at the same percentage of GNP as expenditure on education throughout the country in view of the regional disparities in the levels of income; 4) since development plans of all the countries provide for expenditure on education as part of the total investment in social services, the amount allocated to education will depend on the expenditure on social services as well as per capita investment. Thus, an increase in both per capita investment and expenditure on education is necessary; 5) as GNP grows, expenditure on education is also bound to increase because of an increase in the demand for education. Similarly, educational expenditure will have to rise in order that GNP also may rise.

GUIDANCE AND COUNSELLING

530 NANDA S K: Guidance and counselling. Educational India 1968, 34(10), 322-4.

The major reasons for the failure of the movement of guidance and counselling in schools are: 1) indifferent attitude of some parents towards guidance and ignorance of some others about the existence of such a movement; 2) lack of sufficient funds and indifferent attitude of headmasters and guidance workers towards the programme; 3) ill-equipped workers whose training is inadequate and qualifications unsuitable; 4) guidance being anticipatory in nature, it should be provided at the school stage; 5) lack of necessary tests and tools which are a pre-requisite to any guidance programme.

531 UDAY SHANKER: Teacher's role in educational guidance. Educational India 1968, 34(9), 292-4, 303.

Teachers should participate in guidance activities to help students in the choice of subjects for two reasons: 1) various mental tests used by experts are not necessarily reliable and; 2) there is a dearth of such experts. The various mental factors involved in the successful study of a subject are: 1) general intelligence or mental alertness; 2) special ability or aptitude; and 3) interest or liking for the subject. Teachers' assistance for choice of subjects may be sought in the following way: 1) the class teachers' opinion and estimate of the students' abilities and aptitudes; 2) cumulative records of students maintained by teachers showing the performance in various subjects in different examinations; 3) interview of students by teachers for ascertaining the suitability of a subject for a particular child.

HEALTH CARE

532 JAIN A M: Planning and organisation of child health services in rural India - school health service. Indian Journal of Pediatrics 1968, 35(242), 150-55.

The following suggestions have been made for planning school health service: 1) the principal services should be periodic health appraisal, specific protection against preventible diseases, early detection of disease process and its proper management, rehabilitation of diseased and handicapped students, maintenance of school dispensary, imparting health education to students, staff and parents, and providing anticipatory guidance to them; 2) the programme should be a co-ordinated effort of the medical, health, and education departments, and the village panchayats; 3) health personnel should include physician, public health nurse, auxiliary nurse, midwife, dispenser, basic health worker and volunteers from teachers and students; 4) it should be financed by the education and medical health departments and the village panchayats; 5) the programme should be phased and first started in high school/higher secondary schools in an area where a primary health centre is located; 6) after orientation and motivation of the community to the programme, a school health committee should be formed; 7) undergraduate students should be trained in the organization of community welfare services.

HIGHER EDUCATION

533 ALL-INDIA UNIVERSITY TEACHERS' AND STUDENTS' CAMP, BOMBAY: Academic freedom and national unity. Hindu 4 June, 1968, p.6, Cols. 4-8. 1116 words.

Presents an account of the six-day camp in which students and teachers from 58 universities and eminent educationists participated to discuss problems facing the academic world. The discussions centered round: 1) the growth of anti-secular ideas; 2) political interference in academic affairs; 3) linguism and regionalism leading to national disintegration; 4) importance of economic development for national integration. Although the students agreed that partisan politics should be kept out of universities by forming students' own organisations some students felt that the phenomenon could be eliminated by introducing healthy political consciousness in the university community. The participants took solemn pledges: 1) to serve the country and the academic movement; 2) to protect, preserve and maintain the unity and integrity of the country, the democratic way of life and rule of law, and secularism and communal harmony; 3) to solve the problems of students and teachers through discussions; 4) to remove active partisan politics from university campuses; and 5) to prevent exploitation of academic issues by politicians.

534 INTER-UNIVERSITY BOARD OF INDIA & CEYLON: IUB annual meeting - important decisions. University News 1968, 6(3), 8-9.

The following are some of the important decisions taken in the Fortythird annual meeting of the Board held in February, 1968: 1) admissions - (a) adoption of the principle of selective admission to postgraduate classes, (b) as a measure of national integration, universities should fill up at least 5% seats directly on merits on an all-India basis, (c) universities should exercise their autonomy in respect of admissions, (d) attempts should be made to remove any provision conflicting with the basic principles of admission being primarily on the basis of merit irrespective of the state of origin of students; 2) national social service schemes - (a) making N.C.C. optional need not be linked up with the enforcement of the scheme, (b) no credit should be given for the schemes in academic programmes, (c) substantial part of the fund spent on such schemes should be diverted to other schemes connected with higher education and youth welfare; 3) education and employment - (a) government should assist graduates in professional courses to secure suitable employment, (b) admissions to professional courses should be related to economic situation, (c) closer liaison should be established between universities and business and industry. An appeal has also been made, requesting political parties to desist from interfering with the noraml working of universities to enable the university system to perform its role as an instrument of a national policy and thus promote national integration.

535 JOHN V V: Nehru university - idea of academic federalism Times of India 3 May 1968, p-8, cols.3-5, 7.

The ambitious programmes of postgraduate studies and research should be preceded by the qualitative improvement of undergraduate education. Attempting any daring academic programmes and taking over the responsibilities of affiliated undergraduate colleges are not irreconcilable. Two pronouncements on the pattern of the new university that deserve consideration are: 1) its institutional structure would be federal; and 2) teaching would be organized under schools of studies providing for inter-disciplinary programmes (on the lines of Sussex University). These two patterns could both become distinctive features of the new university. Adoption of the models of the State University of New York and Associated Colleges of Claremont (California) rather than the collegiate system of Oxford would give reality to the federal principle, and thus on the basis of freedom and collaboration the new university should be able to develop colleges with distinctive personalities.

536 New trends in higher education. Hindu 7 May 1968, p.6, Cols. 1-3. 685 words.

The following trends as revealed in an assessment of the annual report of the University Grants Commission (1966-67) have been appreciated: 1) emphasis laid on postgraduate work and research. This would ultimately improve the quality of instruction; 2) increasing enrolment in science courses. However, teaching of history, economics, languages etc. should not be neglected; 3) setting up more Centres of Advanced Study in different universities during the next decade for various subjects including some modern Indian languages. The most remarkable development, however, has been the progress of the seven agricultural universities modelled on the American Land Grant Colleges. Teaching is combined with research and extension work in villages. Another important feature of these institutions is their own curricula and the examination system following the semester pattern. The courses of study include work in the basic sciences and humanities as well as in the techniques of agriculture. Some of the older private colleges, as suggested by the Education Commission (1964-66) could similarly be made independent.

HISTORY

537 PARASNIS N R: History and survey of education in Thana district (former Bombay State, now Maharashtra State) - a thesis for the degree of Doctor of Philosophy of the Bombay University. Bombay, University of Bombay, 1967. xiii, 476p. 53 ref.

The data for the study were collected from official documents and by issuing supplementary questionnaires. Some features of indigenous schools which were popular in the pre-British period (1817-1855) have been discussed in Chapter III. Chapter IV traces the development of primary education and growth of British system of primary education (1818-1947). Some problems of primary education (e.g. compulsory primary education, inadequacy of school buildings, single-teacher school, basic schools, wastage and stagnation) have been discussed in Chapter V. A historical review of primary education of girls has been given in Chapter VI. Chapter VII traces the growth of secondary education since 1823. Chapter VIII deals with the education of Indian Christians. Chapter IX describes the social conditions of displaced persons in the Kalyan camps and their efforts to provide education to their children. Chapter X discusses the problem of the education of the Adiwasis (aboriginal tribes) constituting about 20% of the population. Adult and social education is the subject of Chapter XI. Chapter XII gives an account of educational facilities at the higher and the pre-primary stages, training institutions, and some special schools. Some suggestions have been made in the last chapter.

INSTRUCTIONAL MATERIAL AND AIDS

538 CHAKRABARTI S K: Audio-visual education in India. 3rd rev. and enl. edition. Calcutta, Oxford Book Co., 1968. 284p.

Part 1 traces the development of audio-visual education in India. Part 2 describes the following 19 audio-visual aids with illustrations which can be conveniently used in India: field trips, chalk board, flannel board, bulletin board, pictures and photographs, posters, charts, diagrams, maps and globes, models and mock-ups, objects, dramatizations, studies and film strips, episcope and tachistoscope, stereo-projectors, overhead projector and micro-projector, film, TV, radio broadcast and tape recordings. Appendices give a list of film strips and films for use in different levels and fields of education and sources of material and equipment.

LANGUAGE PROBLEM

Medium of Instruction

539 AZAD B J: Education and the medium of instruction. AICC Economic Review 1968, 19(11-13), 74-5.

It is pointed out that the policy of the Indian National

Congress is to develop all Indian languages and use them as media at the university level for the following reasons: 1) to raise the standards of education; 2) to release the creative energies of the people; 3) to spread knowledge to the masses; 4) to hasten the process of modernization and reduce the gap between the intelligentsia and the people. Already 35 universities allow a regional language as a medium of examination and in 15 universities 90% students have opted for regional languages as media of education. In 17 universities the regional languages can be used as media at the postgraduate level also. However, it is pointed out that this process of changeover has not been governed by a plan. The production of necessary literature, the orientation and re-equipment of teachers for the new responsibilities and simultaneous strengthening of the teaching of English as a library language are aspects to which adequate attention should be paid. The government is trying to bring about a planned change with a view to raising standards.

540 BANNERJEE D N: Language for education. Amrita Bazar Patrika Centenary Supplement 12 April 1968, p.161, cols.4-5, p.164, cols.5-8. 3792 words.

The proposed introduction of the regional languages as media of instruction at the university stage would threaten the unity of the country, impair inter-state communication and hamper economic progress. Besides, none of the Indian languages is fit as a medium of instruction at the university level. It has been argued that this move is an indirect method of replacing English with Hindi. With regard to the medium of instruction, the examples of unilingual states - Japan, England, France, Germany etc. - cannot be followed. Replacing English with Hindi as the link language would give the Hindi-speaking people a natural and permanent advantage over non-Hindi-speaking people, resulting in two classes of citizens. The proposed move of spending huge amounts of mo money for the development of regional languages and for producing adequate university level instructional material is a sheer wastage. Several badly equipped universities have adopted regional languages as media because of their inferiority complex, but this is no reason why the remaining well-equipped universities should follow suit.

541 Hindi by the back door [Editorial]: Hindustan Times 31 May 1968, p.7, cols.1-2. 610 words.

Criticizes the policy circular issued by the Central Schools Organisation regarding the introduction of Hindi in Central schools (see Abstract No.543) which are run mainly for the benefit of employees who are liable to be transfered from one state to another. The argument, that the circular is merely an extension of the policy of progressive switch-over to Hindi medium adopted last year, is not tenable. The question should be first settled whether a decision to replace English by Hindi in Central educational institutions has already been taken. Although the use of regional languages as media of instruction at the school level is favoured by educationists, no final decision has so far been taken. A decision in respect of Central schools should have been taken by the Union cabinet.

542 INDIA. CENTRAL SCHOOLS ORGANIZATION: Policy note on teaching medium in Central schools explained. Hindustan Times 29 May 1968, p.8, cols.5-8. 1360 words.

The policy circular by the Secretary of the Central Schools Organization (CSO) (see also Abstract No. 565) to the principals of the central schools contains the following instructions: 1) all schools are to be considered as Hindi and English-medium schools; 2) separate sections for Hindi and English media should be abolished; 3) no school should put restrictions on the students conversing in the languages learnt in the school; 4) emphasis on "Indianness" should be laid in cocurricular activities; 5) social studies should be taught through Hindi from 1968-69 in classes I to VI and progressively extended to classes VII to XI in each successive academic session; 6) all primary teachers should gain competence in teaching both Hindi and English; 7) the school library should have for reference purposes Hindi books on subjects taught in English and vice versa; 8) in respect of science subjects, the teachers and students must be familiar with English and standardized Indian terminology, and wherever teachers have competence these subjects should also be taught in Hindi; 9) students transferred from other schools should be helped to overcome any difficulty arising from the difference in the medium; 10) students should be permitted to use the medium of examination of their choice; 11) principals of schools should chalk out a programme and initiate measures for orientation, reorientation and training of all the teaching staff in conformity with the policy enumerated.

Study of Languages

543 ALL INDIA CONGRESS COMMITTEE: Working Comittee Resolution [on language problem]. A.I.C.C. Economic Review 1968, 19(15), 13.

The resolution adopted at the meeting held on 29 January 1968 had reiterated that the solution of the language problem lies in the adoption of a bilingual formula, i.e. use of Hindi and English for Union administration as laid down in the amended OfficialLanguage Act. For successful implementation of this formula, persons employed in the Union administration should be proficient in either Hindi or English and have a working knowledge of the other language. For this purpose acceptance and implementation of the three-language formula in schools is essential. The Committee further requested the Union Government to ensure that there is no unequal burden on any linguistic group while implementing the policy.

544 **ANAND M R:** Plea for English for higher education. Quest 1968, No.57, 30-9.

For the enlightenment of the masses and their fuller participation in the democratic processes, and also for the liquidation of English-knowing elitism it is necessary to impart education through mother tongue and develop an all-India link language. However, sucy a new educational policy should be implemented without disturbing the present communication media. Continued use of English is necessary until all the Indian languages - including Hindi - develop as effective media. In the new education programme English should be introduced at the 5th or 6th class and Hindi at 4th class using mother tongue as medium of education. After this stage all the three languages should be taught allowing the students to answer examination papers in the language of their choice. Even after the acceptance of Hindi as the link language English should remain as an associate link language. A distinction has been made between Hindi as the basic link language for its official use and its purposive capacity as the subtle language of education, research and as an international language. Conscious development of Hindi and the other regional languages - some of which are less developed than others - is suggested.

545 Equalizing the language burden. (Editorial): Educational India 1968, 34(9), 297-9.

Supporting the resolution adopted by the Congress Working Committee (see Abstract No.544), it has been pointed out that the solution of the language problem at the administrative level lies in the extension of the three-language formula to all entrants into Union services. Since proficiency in both English and Hindi is not insisted upon during recruitment, there is an unequal language burden on the entrants from non-Hindi areas. Since talented students join such services, there would not be much difficulty for them in learning two additional languages besides their own. However, extension of the three-language formula, as suggested by the Committee, to schools would put a heavy burden on students.

546 **RAU S K:** Forgotten factors of language formula. Assam Tribune, 3 April 1968, p.4, cols.3-5. 1420 words.

The failure of the three-language formula has been attributed to the following: 1) education being a State subject, the Centre could not force States to implement the formula; 2) State Governments did not seriously try to implement the formula;,3) although Southern States showed less indifference than the North in the implementation of the formula, no attt attempt was made to evaluate the achievement made in teaching Hindi; 4) the Northern States, particularly Uttar Pradesh, preferred Sanskrit as the third language instead of a modern Indian language. The Uttar Pradesh Government made English an optional subject in high school and intermediate classes even before the three-language formula was conceived of; 5) although State Governments received financial assistance of the Central Government for teaching Hindi, some (notably Mysore) did not pay Hindi teachers properly. While it showed indifference to Hindi to appease the extremist students, it tried to impress on the Centre that it was taking steps to popularize Hindi; 6) even if the Uttar Pradesh Government wanted to implement the three-language formula, the problem of getting large number of teachers for teaching South Indian languages is insurmountable.

547 **SATTANATHAN A N:** Fallacy of equalising language burden - no utility value. Mail 10 May 1968, p.4, cols.3-6. 1600 words.

Equalization of language burden would not solve the language problem. No student would learn an additional language unless it has some utilitarian value. The progress of Hindi in Southern states and the failure of the three-language formula in Northern states are cases in point. Hindi or any other Indian language would fail as an integrating factor unless the language is voluntarily accepted as a matter of proved convenience. Since English continues to be the language of Union administration, and since knowledge of English is of considerable importance for inter-regional mobility of employment seekers, English should continue indefinitely. It has been suggested that a permanent state of bilingualism should therefore prevail in educational and scholarly circles.

LITERACY

548 **ZACHARIA T C:** Correlation of employment and literacy in India. Economic Times 16 June 1968, p.7, cols.3-6; p.6, cols.1-2. 890 words.

The following data have been presented to examine whether a relation exists between the level of employment in industrial and tertiary activities and percentage of literacy: 1) total work force and the work force in nine categories of employment in selected states; 2) state-wise ratio of male-female workers for different categories; 3) percentage of workers belonging to industrial and service sector and percentage of literacy; 4) correlation of employment in industrial and service sector and the level of literacy. The following are the findings: 1) generally women are engaged in cultivation and agriculture, plantation and household industries where educational background and much technical skill are not needed; 2) a wide gap exists between the ratio of male-female workers in industrial and service sector. But the gap is narrow in Kerala which reflects a high percentage of literacy among women. 50% of male workers are employed in industrial and service sector, the male literacy being 55% and 33% of women are engaged in the same sector (highest in India), female literacy being 39% (highest in India). Employment in industrial and service sectors and the level of literacy are highly correlated (r=0.73 for male workers, r=0.896 for female workers), reflecting a linear relationship. Literacy and therefore education is another factor besides income that determines the occupational mobility of labour from farm to factory.

MORAL EDUCATION

549 BOURAI H H A: Study of moral education in theory and practice. Rajasthan Board Journal of Education 1968, 4(2), 3-8.

A practical approach to moral education has been pleaded since investigations conducted under the guidance of the author revealed that mere preaching of moral values is not sufficient to teach morality. The following are some suggestions: 1) providing adequate opportunity to children to practise ideals; 2) better use of curriculum to inculcate a healthy moral spirit in children; 3) celebration of birthdays and death anniversaries of saints, scholars and eminent scientists to rouse reverence and a sense of admiration among students; 4) ensuring participation of students in the day-to-day administration in schools to acquaint them with the practice of democratic institution. The spirit of true religion, secularism and democracy would lay an ideal foundation for a healthier moral education.

550 JOHNSON G T: Moral education and school atmosphere. Christian Education 1968, 18(2), 16-19.

Moral instruction should be imparted in schools as a special course with the help of special books and by inference and guidance in other subjects. Emphasis has been laid on creating a happy and disciplined atmosphere in schools which can influence children more than classroom instruction and guidance.

551 THAKUR G S: Religious and moral education. Haryana Journal of Education 1968, 1(2), 15-19.

Moral and religious education should be woven into the whole programme of the school, expressing itself in every school activity. There should be a short period of silent meditation every morning before the beginning of the classes. The essentials of different religions should be taught, stressing their common aim. Reading of biographies of great saints and spiritual leaders, celebrating their birthdays and participating in religious festivals can help students imbibe the noble tenets of different religions. The method and content of religious instruction should be graded and should vary with the different requirements of children of varying ages.

PHYSICAL EDUCATION

552 HIRIYANNIAH K N: Training facilities for teachers of physical education in India. Teacher Education 1968, 2(3), 15-18.

There are 55 institutions (9 for men, 3 for women and 43 co-educational) having an intake capacity of 5025, for imparting training at the certificate, diploma, graduate and postgraduate levels. Some significant features of the courses are: 1) the institutions are managed by Government (19), private organizations (33), and universities (3); 2) the courses both at the certificate and diploma level are split into three parts, viz. theory, skill, and teaching ability; 3) for degree courses, the respective universities prescribe the syllabi; 4) the medium of instruction for the certificate and diploma courses is the regional language in most institutions. English is used in degree courses; 5) minimum academic qualifications for admission are matriculation or equivalent for the certificate course, a degree for the diploma course, a pass in higher-secondary for the three-year degree course, and degree or diploma in physical education; 6) the duration of the courses is one full academic session for certificate and diploma courses, three years for the first degree, and 1-2 years for master's degree; 7) orientation, refresher and short-term courses are conducted by Central Training Institutes; 8) financial incentives like free-studentships and stipends are provided in some institutions; 9) the institutions are not evenly distributed over the country (22 in Maharashtra).

553 **SUJAN SINGH:** Ucca vidyālaya meṁ śarīrik śikṣā adhyāpaka kā kārya. Naya Shikshak 1967, 9(4), 25-30.

Divergent opinions regarding the objectives of physical education and the role of physical education teachers have been discussed. A programme of physical education which emphasises only the discipline, development of skills in sports and games, and entertainment, benefits a limited number of pupils. The teachers should plan a broader scheme covering all students in the school irrespective of their selection of future career. Such a programme should be aimed at developing physical fitness, courage, spirit of sportsmanship, and alertness. Yoga exercise, physical exercise, racing etc. keep students physically fit. Walking, mountaineering, and camping make them courageous. Success and failure in games develop the spirit of sportsmanship, and participation in games develops the skill of alertness.

POLICY AND PLANNING

554 **ASIAN INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION, NEW DELHI:** Introduction to educational planning. New Delhi, the Institute, 1968. 126p.

The book in three parts consists of 11 chapters written by various authors. Part 1 introduces the concept and the nature of modern educational planning. Part 2 (Chapters 2-6) describes the goals of educational planning and covers the qualitative and quantitative aspects, and socio-economic factors and priorities in educational planning. Part 3 (Chapters 7-11) deals with the practical issues involved in educational planning. They include statistical needs of educational planners, cost and finance of education, control and change in education, administrative organization in educational planning and special problems in planning, implementation and co-ordination of educational programmes.

555 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH. DIVISION OF SCIENTIFIC AND TECHNICAL PERSONNEL: Unemployment among engineers. Technical Manpower 1968, 10(5), 1-20.

Presents the results of two surveys based on the data in the National Register of Scientific and Technical Personnel (CSIR), and the data supplied by 104 degree-level colleges and 193 diploma-level institutions. The following are some significant findings: 1) about 33% graduates and 20% diploma holders obtained first class; 2) about 75% graduates and 60% diploma holders belong to the age group 22-25; 3) about 33% graduates and 50% diploma holders had been unemployed for more than 6 months; 4) as on April 1968 about 7,5000 graduates and about 30,000 diploma holders were unemployed; 5) mechanical and electrical engineers had higher unemployment than civil engineers; 6) unemployment was highest among those who graduated from the Southern region, but as percentage of out-turn unemployment it was in the Eastern region; 7) the pereentage of unemployment among graduate engineers had nearly doubled between 1961 and 1968 while it had trebled among diploma-holders. A fourteen-point programme had been formulated by the Government of India to accelerate engineering employment. Some important points are: 1) expansion of the training-in-industry scheme sponsored by the Ministry of Education; 2) creating short-service commissions in the Army Technical Corps; 3) extension of the Apprentices Act (see Abstract No.1073 Indian Educational Material V.1, No.4) to cover engineering graduates; 4) rapid filling of vacant posts in different departments; 5) financial assistance to engineers for setting up small-scale industries; 6) insisting on the employment of qualified engineers by contractors doing government work and by factories above a certain level of technical sophistication; 7) employing engineers in marketing, sales and management positions in public undertakings; 8) sending out technical experts to friendly developing countries to assist in their development programmes. The programme also includes three suggestions which would increase employment opportunities: 1) thorough investigation of projects to be considered for inclusion in the Five-year Plans; 2) preparation of technical reports of completed projects; 3) development of Indian Consultancy Organizations for examining major Plan projects, foreign collaboration projects and projects for which financial assistance from government has been sought.

556 INDIA. MINISTER OF EDUCATION, 1967 - (T. SEN): Problem of jobs for trained engineers. Hitavada 5 April 1968, p.4, cols.2-4. 885 words.

According to the records of the Directorate General of Employment and Training about 7,500 graduate engineers and 29,300 diploma holders are unemployed. The completion of various projects had also rendered a large number of technicians surplus. The number of engineering graduates and diploma holders would increase from 14,750 graduates and 25,000 diploma holders in 1968 to 22,400 graduates and 33,000 diploma holders in 1971. The following steps had been taken to overcome the problems: 1) the Planning Commission had been requested to determine the future technical manpower requirements; 2) arrangements have been made for the practical training of engineering graduates in industry; 3) facilities are being provided for postgraduate studies and research to qualified engineers; 4) there would be no further expansion of engineering education at degree and diploma levels till the demand for technical personnel for the Fourth and Fifth Plans are correctly assessed.

557 INDIA. MINISTER OF EDUCATION, 1967 - (T. SEN): Sen suggests 5-year consolidation period on technical education [Presidential address at the 19th meeting of the All-India Council of Technical Education on 25th May 1968]. Hindustan Times 26 May 1968, p.12, cols.5-7. 570 words.

Government had formulated a suitable plan for qualitative improvement of technical education. This includes a suggestion to the States to reduce the admission capacity of engineering institutions by nearly 35 to 40% considering the grave problem of unemployment among engineers. Past projections of the requirement of engineers largely based on the theoretical estimates were not subjected to severe scrutiny. State Governments have been requested not to resist such proposals and to co-operate with the All-India Council of Technical Education. Reduction of admission capacities would be first effected in institutions which lack requisite staff and equipment. For reorganizing diploma courses and orienting them functionally to the need of the industry, collaborative relationship between polytechnics and industries has been suggested. For the faculty development, serving teachers should be placed in selected industrial organizations.

558 Jobs and the jobless [Editorial] Hindu 31 May 1968, p.6, cols.1-3. 450 words.

Unemployment among technical personnel is a result of too much dependence on theoretical estimates of manpower needs worked out by various agencies, as pointed out by the Education Minister (see Abstract No.557). The annual growth rate in the "engineering extensive" sector had been around 6.7% against the target of 11%. However, with the improved agricultural production the employment climate is likely to improve. The recent pronouncement of the Union Labour Minister who wanted factories to adjust employment policy to job requirement of the labour market has been criticized, because it would breed unemployment and retard productivity.

559 NAG CHAUDHARY B D: Educational planning for tomorrow. Haryana Journal of Education 1968, 1(2), 49-56. Meeting the educational needs of society. Madras Information 1968, 22(5), 26-9.

In view of the inadequacy of funds in the Fourth Plan, the areas of priorities should be determined and efforts should be concentrated on selected and essential tasks. New schemes should be carefully examined and subjected to field trials before introduction. Frequent assessment of the current schemes should be made to determine their usefulness. Decisions on planning policies should be based on adequate and reliable data. As a measure of decentralization, a district should serve as basic unit for educational planning. This would not only facilitate raising local resources for the development of primary and secondary education, but would also lead to the involvement of the community in the functioning of schools. Further, with the participation of teachers in community activities, the gap between community and school would be bridged. Other suggestions are: 1) elementary education - (a) concentration of efforts on neglected areas and backward communities, (b) improvement of school buildings, teacher education programme and service conditions of teachers; 2) secondary education - (a) stress on in-service training of teachers rather than pre-service training, (b) making secondary education broad-based and terminal in nature, (c) improvement of guidance and counselling services, (d) maintaining contact with the neighbouring college or university and with local industryand agriculture for the professional growth of teachers, (e) utilisation of research results in the field of education.

560 SHARMA G S, Ed.: Educational planning - its legal and constitutional implicationsin India. Bombay, N.M. Tripathi Private Ltd. (for Indian Law Institute), 1967. vi, 279p.

Presents 18 papers read at the "Seminar on educational planning - its legal and constitutional implications in India" organized in January, 1966 at the Indian Law Institute, New Delhi under the joint auspices of the Institute and the Education Commission (1964-66), and the proceedings of the discussion sessions. The seminar in eight sessions discussed the following topics: 1) (a) cultural and language groups and educational planning, and (b) protective discrimination and educational planning; 2) legislative relations between the Union and the States; 3) (a) religious freedom and educational planning, and (b) freedom of expression and educational planning; 4) equal-protection clause, selective techniques and educational planning; 5) (a) directive principles of state policy and educational planning, and (b) legal theory and educational planning; 6) administrative relations between the Union and the States; 7) Union-State financial relations; 8) administrative organization of higher education and educational planning- Although no consensus could be reached in the discussions, the Seminar indicated the need for a continuing dialogue between the law and the social sciences.

PRESCHOOL EDUCATION

561 SARWAN KUMAR: Pre-primary education in India since 1947 - an appraisal. Indian Education 1968, 7(5), 3-12.

The three aspects of the problem, viz. 1) expansion; 2) finances and 3) teachers have been discussed with the help of statistical data as available in the Five-Year Plans. The deficiencies found are: 1) expansion, in terms of number of schools and enrolment, has been steady but mostly restricted to urban areas. Rural areas shared only 9% of the total number of pre-primary schools in 1950-51, which increased only to 12% in 1955-56 and 14% in 1960-61. Similarly, rural children formed only 5% of the total enrolment in 1950-51, 8% in 1955-56 and 9% in 1960-61; 2) expenditure is very low, the percentage having increased from .15 to .2 in a period of 15 years (1950-51 to 1965-66); 3) although the number of teachers increased rapidly (teacher-student ratio increased from 1:50 in 1950-51 to 1:30 in 1960-61), the number of untrained teachers has also increased. The number of women teachers increased more rapidly than that of men teachers. The number of teacher training institutions increased from 10 in 1950-51 to 26 in 1959-60. The following suggestions have been made: 1) opening of more pre-primary schools in slum areas for the benefit of the poorer section of the society; 2) setting up nurseries for the benefit of the working class by the joint efforts of the government and the industrial establishments; 3) financing pre-primary education by rich people and industrial establishments; 4) opening more teacher-training institutions in rural and industrial areas.

PROGRAMMED INSTRUCTION

562 INDIAN ASSOCIATION FOR PROGRAMMED LEARNING, NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING, NEW DELHI: Proceedings of symposium on educational technology. New Delhi, the Association, 1968. 20p.

The first session was devoted to the concept underlying educational technology and discussed its definition and scope, variables in the teaching-learning process amenable to educational technology, the process of analyzing instructional goals and developing instructional sequences for their attainment, and the role of audio-visual aids in the instructional process. The second session was devoted to the analysis of the training system with a view to identify problems of training in various sectors of education, convert the problems into a set of scientific and empirically answerable questions, and determine the approach for their solution. The third session discussed the development of educational technology in advanced and developing countries. The concluding session was devoted to the application of educational technology in India. Some papers presented in this session describe in detail the use of educational technology to solve the following problems: 1) development of correspondence course for B.Ed. students in Delhi; 2) secondary school students of Delhi; 3) training of family planning workers; 4) programming human teacher for maximizing student learning.

563 KULKARNI S S: Teaching learning process - a system analysis. Vigyan Shikshak 1968, 12(2), 1-8.

The steps involved in programmed learning have been discussed and the underlying principles have been enumerated. The selection of the media to be used should be determined on the basis of the nature of the programme and the nature of expected response. The principles should not be sacrificed for accommodating age-old educational components. Besides the teacher (or a teaching machine) and a learner, the other components are: (a) parents; (b) school administrator; (c) the community; and (d) the State. The roles of educational technologists and engineering technologists have been discussed and their co-operation has been urged.

SCHOOL FORMS

564 CHICKERMANE D V, MALI M G: Single teacher school - a study. Gargoti, G.K. Institute of Rural Education, 1968. 80p. 12 ref.

Presents a report of an intensive study conducted in the Bhudhargad Taluk (Kolhapur District, Maharashtra) representing a typical single-teacher school area. The tools used were: 1) a questionnaire covering all aspects of work in the schools; 2) interview of teachers; 3) an achievement test to compare the achievements of children in single-teacher schools and also to discover areas of weaknesses in scholastic achievements; 4) discussions with villagers. The findings have been presented in Chapters III-IV under the following heads: 1) teachers; 2) buildings; 3) methods of teaching; 4) stock of teaching aids. Suggested norms in respect of the above aspects and measures to attain these norms have also been given. Chapters VII and VIII deal with the planning of academic work based on the concept of the ungraded unit, and physical development of the schools. Chapter IX discusses the need for co-operation between school and the community for implementation of the programme. The growth of single-teacher schools has been traced in Chapter I.

565 INDIA. MINISTRY OF EDUCATION: Central school organization - memorandum of association and rules. New Delhi, the Ministry, 1966. 24p.

The object of the organization which is a registered society under the Societies Registration Act, XXI of 1860 is to run schools all over the country for the children of transferable Central government employees, floating population and others. The rules provide that the Organization would consist of 17 members representing some Union ministries, State governments, Central Board of Secondary Education and the National Council of Educational Research and Training. The secretary of the Union Education Ministry is the Chairman of the Organization. The affairs of the Organization will be conducted by a Board of Governors consisting of some members of the Organization. The annexure gives the list of 90 Central Schools run by the Organization in different States.

SCIENCE EDUCATION

566 PATHAN Z N: How to make science teaching and learning more effective in secondary schools? Rajasthan Board Journal of Education 1968, 4(2), 12-15.

The stress should be on providing each pupil with the functional scientific attitude, methods, and experiences. The following suggestions have been made for the improvement of science instruction: 1) building up a collection of science textbooks; 2) arranging excursions, exhibitions and fares; 3) utilizing the services of science clubs to create interests among students; 4) collecting interesting information from different sources including popular science journals; 5) arranging discussions and practical work; 6) providing opportunities for utilizing leisure hours in science activities; 7) constructing inexpensive visual aids by students for science teaching; 8) reviewing periodically the aims and objectives of the courses and assessing the progress towards their fulfilment; 9) analyzing periodically the community resources and modifying instructional procedures accordingly; 10) participating in curriculum planning at local, regional and state levels; 11) keeping in touch with educational literature relating to science education.

567 Summer science institutes - a review. University News 1968, 6(3), 7-8, 11. Summer institutes help science teaching. Yojana 1968, 12(12), 9-10.

Presents a review of the institutes organized by the University Grants Commission, the National Council of Science Education, the U.S. National Science Foundation and the USAID. The institutes provide opportunities to secondary school and college teachers in physics, chemistry, mathematics and biology to acquaint themselves with current development in thier respective field of knowledge and modern curricula and techniques of instruction. During the period 1963-67, 172 institutes were held in which 6680 teachers participated. USAID provided necessary instructional material and also the services of leading American teachers. During the current year new instructional material prepared by School Mathematics Study Group (SMSG), Physical Science Study Committee (PSSC), Chemical Education Material Study Group (CHEM) and Biological Sciences Curriculum Study (BSCS) would be used. The future programmes include institutes in agriculture, medicine and political science. Science teachers all over the country are expected to be covered by 1971. A rigorous follow-up programme has also been planned.

STATISTICS

568 INDIA. MINISTRY OF EDUCATION: Education in India 1962-63. Vol.2 - all-India tables 1962-63. Delhi, Manager of publications, 1968, 140p.

Presents statistical data on the following topics: 1) educational expenditure; 2) expenditure on institutions for boys and girls; 3) distribution of pupils in institutions for boys and girls; 4) distribution of pupils receiving general education, and professional and special education by classes and age groups; 5) teachers in schools for general education, and vocational and special education; 6) examination results; 7) progress of compulsory primary education; 8) rural education; 9) scholarships, stipends and other financial concessions; 10) social adult education; 12) libraries for adults; 13) education for the handicapped and the backward community; 14) study abroad.

STUDENT INDISCIPLINE

569 BANERJEE R: Indiscipline - a survey of students' opinion. Journal of Psychological Researches 1968, 12(1), 1-6. 6 ref.

Aims at determining the most crucial psychological factors which lead to indiscipline. The questionnaire was constructed on the basis of the opinions expressed by 100 boys and 100 girls of the age group 14-17 studying in classes X and XI of some schools in Calcutta in writing an essay on the motivational causes leading to indiscipline. The causes, grouped under the following categories and approved by some experienced judges, are: 1) rationalizing tendency; 2) passivity difficulty; 3) immaturity; 4) low frustration tolerance index; 5) escape mechanism; 6) imitation need; 7) neurotic diathesis; 8) exhibition need; 9) aggression; and 10) pleasure-seekingness. The final questionnaire which included 41 items falling in these categories was administered to 200 boys and 200 girls of the same age group in Calcutta schools. The first 7 categories produced significant results in favour of positive opinion and, therefore, in the general opinion of the group, they were considered as factors contributing to the causes of indiscipline. No significant relationship exists among these 7 dimensions and, therefore, the areas are to be treated as relatively independent. No single factor seems to be responsible for indiscipline. Indiscipline is to be attributed chiefly to the personality structure of the individuals concerned.

570 BHATTACHARJYA H P: Students' unrest - reason and remedies. Educational Review 1968, 74(4), 82-4.

The following causes of student unrest have been identified: 1) educational causes - educational institutions have failed in developing an academic atmosphere and also in inculcating a high sense of responsibility, tolerance and respect for others; 2) social causes - widespread malpractice affects the minds of the students who lose all respect for social norms; 3) economic causes - economic depression and consequent frustration forces the students to adopt any method to realize their immediate demands, reasonable or unreasonable; 4) political causes - political parties contending against each other frequently exploit the emotional youths for their own gain; 5) psychological causes - lack of sympathy and love in the life of a child is reflected in his behaviour in later years.

571 DESHMUKH C D: Students and law. Sunday Tribune 21 April 1968, p.4, cols.3-6; Assam Tribune 16 April, 1968, p.7, cols.1-3; p.8, cols.5-6; Hitavada 21 April 1968, p.4, cols. 5-7; Chātra aur kānun vyavasthā (Students and Law). (Hindi). Āryāvarta 23 April 1968, p.4, cols.3-6. Rāshtradoot 24 April 1968, p.4, cols.4-6.

Student indiscipline in India cannot be traced to the life and teachings of Gandhi who was against the wielder of the power of the law rather than the law itself. Although maintenance of law and order on the campus is the responsibility of the university authorities, the demand that police should not enter the university campus under any circumstances is untenable. However correct judgement of the situation by the authorities and adequate restraint on the part of the police are necessary. Student riot outside the campus should be treated as part of the general disregard of law and order and should be firmly dealt~~y~~ with The increase in the ~~ince~~ incidence of violation of law is a result of the reluctance of government to deal firmly with the offenders. Decline of parental authority and at times parental passive conveniences are also causative factors. The most serious aspect is the experience of students that violent acts produce the desired result. Students should be convinced that the authority is ready to redress their grievances consistent with academic and state-craft principles. Since the community as a whole disfavours violation of law and a majority of students are interested in thier study, it should be possible to stop the current erosion of law by firm and fearless action.

572 INDIA. STATE EDUCATION MINISTERS' CONFERENCE, 8TH, SRINAGAR, 1965. Indiscipline in educational institutions. (In Its proceedings. New Delhi, Ministry of Education, 1968. 19-21, 179-88).

The Conference discussed in detail the question (item No.4 on the agenda) and also considered two memoranda - one by the Union Ministry of Education and the other by the State Government of Madras. The following causes of indiscipline were pointed out: 1) external political influence; 2) certain categories of films; 3) absence of organized extra-curricular activities. The following suggestions were made: 1) intensification of co-curricular and extra-curricular activities in educational institutions; 2) examining the point whether grant-in-aid rules for private institutions should include a provision to debar teachers from participating in political activities; 3) abolition of teacher constituencies in state bi-cameral legislature; 4) dealing properly with law breakers without infringing the autonomy of educational institutions; 5) establishing parent-teacher associations which should exercise their influence to curb indiscipline; 6) raising the age of admission in universities and colleges; 7) keeping students away from active political work, although they may study and understand political systems and their working; 8) appointment of headmasters and principals by selection on merit rather than promotion by seniority. The memorandum of the Union Ministry of Education referred to the recommendations of U.G.C. (1955), Committee on Students' Indiscipline of U.G.C. (1956), and the Chief Ministers Conference (1964). The recommendations so far implemented are: 1) closer contact between teacher and student; 2) better service conditions for teachers; 3) better amenities for students. The analysis of a number of cases of student indiscipline made by the Ministry and U.G.C. revealed that generally the causes leading to indiscipline do not vary much from state to state. Some immediate causes are: 1) increase in tuition fees; 2) reduction in the number of scholarships and other facilities; 3) examinations or examination results; 4) transfer of teaching staff; 5) inadequate physical facilities; 6) Union elections; 7) rivalry between two groups of students; 8) 8) admission policies for professional and technical courses.

STUDENT SELECTION

573 AGRAWAL D P: Predictive validity of interview in the selection of pupils. Teacher Speaks 1967, 4, 79-82.

The study covered a period of six years and was conducted on three batches of selected pupils (age group 10-12 years). The interview roughly covered three areas: 1) mental alertness; 2) general knowledge, and 3) educational achievement. To determine the validity of the interview, coefficients of correlation were worked out between the three sets of rating scores and the aggregate marks obtained by the selected pupils in their annual examinations in the different school subjects after three years of schooling. The results show that in the case of the first and second batch the interviewers' ratings correlated negatively with their academic achievement whereas in the case of the third batch the correlations were positive. However, taken as a whole the results indicate that the interview is not a suitable method for selecting pupils for admission to the school.

STUDENT WELFARE

574 JOHNSTON P: Expanding school lunch programme in Madras State. Journal of Nutrition and Dietetics 1968, 5(2), 97-100.

Presents a review of the programme initiated by the Madras Government in 1957 and assisted by CARE since 1961. With the participation of the Panchayat Unions and local people, the programme now covers about one-third of the elementary school population (1.6 million). In addition to increasing regular attendance, the lunch programme has a noticeable effect on the students' alertness and general receptivity to scholastic endeavours. The future programme devised by CARE includes establishment of a central kitchen in each Panchayat Union for the supply of food to schools within its area, construction of new kitchens in schools inaccessible by road, and a provision for a large farm for each central kitchen for the supply of raw material. The pilot project at Poonamallee run by the State Government had been based on this pattern. The project with the initial assistance of CARE and USAID would be extended, in three stages, to all the 373 Panchayat Unions in the State by 31 December, 1971.

575 RAMACHANDRAN K V, DESHPANDE V A, APTE S V, SHUKLA N N, SHAH M R: Survey of school children in Bombay city with special reference to their physical, physical efficiency, mental and nutritional status. Bombay, Asia Publishing House, 1968, xxiii, 232p.

A sample of about 5,000 children selected from 64 schools (40 primary and 24 secondary schools) in Bombay city was subjected to the study. The children belonged to the following linguistic groups: 1) Gujarati; 2) Marathi; 3) South Indian, and 4) Hindi-Urdu-Sindhi. The second chapter describes the procedure of sampling, collection of socio-economic data. The results have been presented in the subsequent chapters: Chapter 3 - anthropometric data, Chapter 4 - physical efficiency data, Chapter 5 - intelligence test performance data, Chapter 6 - nutritional data. In all cases the methods of collection of data have been described, the data have been analyzed, attempts have been made to find out whether any correlation exists between the various factors. Chapter 7 describes the problems encountered in the collection of field data and some suggestions have also been made to overcome these problems. The following are the main findings: 1) Gujarati children are superior to South Indian children who in turn are superior to Marathi children; 2) boys are superior to girls; 3) children of municipal schools are inferior to others; 4) as in Western countries, occupation, income, educational status have indicated clear relationship with the several anthropometric physical efficiency, mental and nutritional characteristics studied; 5) unlike Western countries birth order and family size have not indicated any clear pattern.

576 REDDICK O: Student service in Indian universities. (In Shreemati Nathibai Damodar Thackersey Women's University, Bombay. Golden Jubilee Commemoration Volume, Bombay, the University, 1968. 67-72).

A review has been made of the growth of student service in India and the programme of the United States Educational Foundation in India has been described. In the past, student services have been ignored in Indian colleges and universities since the British educational system designed for the elite was adopted in India. After independence, the importance of student services was better appreciated as a result of the acceptance of the following modern concepts of education: 1) the right of all citizens and not merely of the elite to education, which necessitates varied and individual treatment; 2) education is no longer merely the training of the brain in the classroom but of the development of the whole man. The

University Education Commission (1948-49) and the Education Commission (1964-66) recommended the appointment of deans of students. But official indifference and lack of finance had been the main obstacles in implementing any programme of student service. Professional knowledge, finance, support of the Vice-chancellors, appointment of a full-time dean of students, and cooperation of other staff members are essential for its success. The main emphasis of the USEFI programme is upon promoting special knowledge among leaders and among college teachers and arousing the interest and support of other colleagues.

TEACHER EDUCATION

577 DAVE R H, SRIVASTAVA H S: Methodology of evaluating educational practices in student teaching. Education and Psychology Review 1968, 8(2), 115-23.

The following methodology has been suggested: 1) specifying the area of evaluation; 2) detailing the different aspects of each area; 3) developing evaluative criteria for each aspect to make the assessment specific and correct; 4) collection of evidence on the basis of the criteria; 5) derivation of an index of proficiency in educational practices (PREP Index) for the quantitative measure of each aspect on the basis of the evaluative criteria. The methodology has been explained using the area student-teaching as an example. The evaluation data, either qualitative or quantitative, could be used for: 1) the diagnosis of the strengths and weaknesses of a particular student-teacher; 2) the self-evaluation and self-guidance of the student-teacher; 3) the certification of the student teacher in regard to his achievement; 4) the prediction of what a particular student is likely to accomplish on taking up a teaching job.

578 DESAI D M: Curricular changes in teacher education. Teacher Education 1968, 2(3), 3-7.

Emphasizes the need for reviewing and revising the teacher education courses. To this end the following suggestions have been made: 1) inclusion of academic courses besides professional courses in the theory part of the degree/diploma syllabus. This should take the form of guided assignments and seminars rather than direct teaching; 2) inclusion of the following courses in educational theory - (a) democratic social philosopy of education, (b) group processess and social behaviour, (c) psychology of learning and principles of teaching, (d) psychology of development, (e) health education,

(f) school administration and human relationship, (g) special methods; 3) involving the student-teachers more in discussion, preparation of assignments, and making judgements; 4) stressing on the relationship between educational theory and practice.

579 DESAI D M: Redevelopment of lesson planning in colleges of education. Education and Psychology Review 1968, 8(2), 101-10.

The need for changing the traditional method of teaching lesson planning and broadening the concept and scope of the topic has been stressed. The following suggestions have been made: 1) the objectives of lesson planning should be defined as an integral part of student-teaching; 2) teaching of lesson planning should be realistic in the context of actual school situation; 3) talented student-teachers should be identified and provided adequate motivation to plan and teach for developing creativity and originality in pupils; 4) lesson planning may be thorough and exhaustive only for the first few lessons; 5) unlike Herbartian lesson plans, steps of plans should be determined keeping in view the instructional objectives, and the nature of the subject matter (evaluation approach). But two much specification of objectives and activities should be avoided and the plans should be flexible; 6) experiences in planning all types of teaching learning situations, viz. group work, teaching through audio-visual aids, conducting co-curricular activities, should be provided. The shifting to the planning of learning experiences from the current traditional practice of restricted teaching in the classroom should be gradual.

580 JOSHI J N, SHIL KUMAR: Mathematical competence of prospective elementary school teachers. Education and Psychology Review 1968, 8(2), 149-55.

The two specific objectives of the study were: 1) to study the mathematical competence of prospective elementary school teachers; and 2) to see whether mathematical competence could be explained in terms of sex-differences. The sample consisted of 120 (60 male and 60 female) prospective elementary school teachers studying in the second year class of the Basic Training Schools in Panjab. A locally prepared Mathematical Competence Test in Hindi was used for the collection of data. The findings were: 1) the mathematical competence trait was found almost normally distributed for males, females and the total sample; 2) the total sample exhibited lack of understanding of the concepts and operations based on signs and laws of operations, relation of number, percentage identity, unity and infinity fractions, unitary method, area and space and profit and loss; 3) the male group demonstrated superiority over the female group in overall mathematical competence pertaining to concepts and operations. The following suggestions have been made: 1) re-orientation of the programme of teachers training in terms of the fundamental concepts and related operations in arithmetic; 2) special attention to female teachers in the preparation of the subject; 3) emphasis on conceptual classification of the subject rather than mastery over mechanical operations.

581 LULLA B P: New concept of student teaching. NIE Journal 1968, 2(5), 32-6. 10 ref.

Student teaching experience, wider in scope than practice teaching, aims at developing in teacher, imagination, initiative, resourcefulness, adaptability, responsibility and teaching skills. The programme should 1) be a full-time purposeful and goal-oriented experience, longer in duration and consisting of continuous blocks of internship; 2) enable the student teacher to have a total grasp of school life and a basic understanding of teaching career; 3) help him in self-identification with his job; 4) develop analytical and creative outlook in work; 5) lead him to self-criticism, self-evaluation and self-direction in work. Though the new concept has not been fully realized and implemented in actual practice in India, a beginning has been made in the four Regional Colleges of Education (NCERT) and the faculty of Education and Psychology, Baroda which organize student teaching on block system. This new concept can be implemented in true spirit if the following necessary conditions are created in teachers' colleges: 1) full faith in the new philosophy of teacher education; 2) freedom to teacher educators in evaluation procedure based on continuous observation of day-to-day work of trainees; 3) scope for self-analysis and self-evaluation to the student teachers; 4) co-operation of schools in the student teaching programme; 5) group planning of the programme by the staff colleges, schools and student-teachers; 6) better staff-student contacts; 7) provision of compensation for co-operating teachers and students; 8) appointment of a full-time co-ordinator of student-teacher programme.

582 PILLAI N P: In - service education of teacher educators. Journal of Educational Research and Extension 1968, 4(4), 123-8.

For the improvement of the standard of in-service education, the Department of Field Services of NCERT should coordinate the educational programme. Its activities should be: 1) providing necessary financial support and other incentives to teacher education colleges; 2) keeping liaison with various institutions conducting the programmes, assessing their work and disseminating the ideas emanating from them to other colleges; 3) suggesting problems to colleges for study, and training selected persons to handle specific problems; 4) providing resource persons for seminars, and workshops organized by different institutions; 5) organizing summer institutes, seminars and conferences on specific themes; 6) arranging inter-collegiate, inter-school and inter-state visits for observation of practice, specially of ne innovations introduced; 7) providing financial and technical assistance to institutions willing to adopt worthwhile innovations; 8) organizing co-operative research programmes and helping teacher-educators to pursue them; 9) publishing a newsletter containing brief results of educational research. Involving the staff of teacher education colleges in activities like curriculum planning, planning the provision of educational services and school amenities, would create real incentive for continued education.

583 QURAISHI M A: Supervision of student-teaching. Education and Psychology Review 1968, 8(2), 111-14.

Generally the method master should act as supervisor, otherwise a teacher with adequate command over the subject should supervise the lesson. A manual of supervision incorporating guidelines based on sound pedagogic principles should be prepared. The importance of pointing out on the spot the mistakes of studentent-teachers engaged in teaching has been stressed. If a student-teacher commits a mistake the supervisor should immediately correct him and also give him the necessary guidance to overcome any difficulty in the classroom. A correction in order to be effective should be made before the real situation ceases to exist. The student-teacher should be impressed that corrections and suggestions made by the supervisor are for his benefit and not for undermining his personality. The pupils in the class should also be made to understand that a practice lesson is a joint venture of the student-teacher and the pupil in quest of knowledge. However, the supervisor should not interfere unnecessarily.

584 RAINA T N, RAINA M K: Attitude changes of graduate student-teachers. Education and Psychology Review 1968, 8(2), 125-33. 17 ref.

The study aims to find out 1) whether the teacher education programme in a teachers' college changes the student-teachers' attitude towards children favourably and 2) the extent of the relationship between the attitude scores and the university examination marks. The sample consisted of 140 student-teachers (22-45 years) divided into two sections which were generally taught by two sets of teachers. A Hindi version of the Minnesota Teacher Attitude Inventory (MTAI) Journal of Teacher Education 1960, 4, 487) was administered. The pre-test and post-test means on the MTAI were calculated for the total group and the two sections separately. The test was used to find the significance between the means and the respective standard deviations. The pre-test MTAI (1) scores and the post-test MTAI (II) scores were correlated; the MTAI (II) scores and the marks obtained by the students in the university examination were also correlated. The findings are: 1) the training programme did not lead to any significant shift of attitudes in a favourable direction. Three possible factors suggested to explain this phenomenon were: (a) the organization and administration of teacher education programmes in the sample teachers' college; (b) advanced age levels of the sample; and (c) the high educational level and the long teaching experience of student teachers; 2) a significantly high correlation was found between the MTAI (I) pre-test and MTAI (II) post-test scores for the whole group and the two sections separately; 3) the MTAI (II) post-test scores had a positive but insignificant correlation with the university examination marks in both the theoretical and practical dimensions of teaching.

585 RUHELA S P: Social system of a typical elementary teacher-training institution in India. Haryana Journal of Education 1968, 1(2), 31-6.

A typical three-tier social system of teacher-training institutions consists of a) the management, b) teachers or instructors and c) students or pupil-teachers. A sociological analysis of these three factors has been made and the following problems have been identified for investigation: 1) impact of the values of members of the management of these institutions on the education of teachers; 2) role-conflicts between heads and teachers in training institutions 3) existing socio-cultural lags; 4) degree of modernity and dynamism in teacher-trainers; 5) factors responsible for the low rate of intellectual activity and professional competence; 6) backgrounds and difficulties of pupil-teachers; 7) impact of the values of teachers on the values and job motivation of pupil-teachers; 8) channels of communication existing in the institutions.

TEACHER ORGANIZATIONS

586 FRANKLIN E W: Teacher organizations in India. Naya Shikshak 1968, 10(3), 74-85.

The growth of teacher organizations has been traced and the activities of 17 major organizations (of a total of 82 national-, state-, and local-level associations and also subject- and stage-wise associations) have been summarized. The associations hold annual meetings, organize seminars and workshops for discussing current problems relating to education and teachers' welfare, and publish periodicals. The associations generally lay stress on educational aspects, but during recent years, because of economic distress, they have been compelled to pay greater attention to economic status. A feature of the Indian Associations has been that they have stressed the educational aspects of their work far more than teachers' welfare. A brief description of some major organizations is given. The following suggestions have been made: 1) building up a strong, unified and efficient all-India organization with representation from all educational levels and having state and district-level branches to raise the standards of education and promote professional growth. It can influence the government in formulating educational policies; 2) setting up arbitration boards or committees to regulate salary and service conditions and to deal with grievances of teachers; 3) maintenance of professional standards and professional ethics.

587 GOPINATH RAO C: Role of teacher organisations. Indian Education 1968, 7(3), 29-34.

The following suggestions have been offered to teacher organizations for promoting professional growth of teachers: 1) organizing lectures on week-ends on current educational topics; 2) holding short-term discussions and long-term discussions and long-term seminars on matters of academic and professional interest; 3) organizing refresher courses for teachers at regular intervals; 4) enabling teachers to earn credits for refresher courses attended, and to improve their positions on the strength of such credits; 5) organizing tours to places of educational interest; 6) organizing an educational exhibition at least once a year; 7) publishing a newsletter or a magazine; 8) conducting educational research; 9) producing different types of educational aids; 10) enrolling student members and offering the required service to such student members also.

588 KAUSHIK S L: Śikṣak-sangh arthat śikṣak trade yuniyan. (= Teachers union or teacher trade union). (Hindi). Naya Shiksak 1968, 10(3), 54-7.

The problems arising out of the increased participation of teachers in trade union activities have been discussed. The society had been apathetic towards the demands of teachers for better socio-economic status. Teacher organizations therefore seek the support of political parties to realize their demands. Their involvement in trade unions and political activities affect the education of students. It has, therefore, been suggested that society should ensure a better socio-economic status of teachers and keep them free from anxiety, in order to enable them to concentrate on teaching.

TEACHERS

589 DUGGAL J: Seminar readings programme for the professional growth of the teachers. Rajasthan Board Journal of Education 1968, 4(2), 53-8.

Describes the programme initiated by the National Council of Educational Research and Training in 1962-63 to encourage teachers in critical reading and creative writing leading to their professional growth. Teachers are invited to write papers based on their classroom experiences. The papers are screened at different stages and 30 papers are selected for awards. The selected papers are discussed in a seminar attended by resource persons and finally published in an annual publication entitled "Teacher Speaks". The programme benefits teachers in different ways: 1) teachers are motivated to undertake experiments and try out innovations; 2) it develops a competitive spirit among teachers and enthuses them to give fresh thought to teaching methods; 3) it helps teachers to think co-operatively about the constructive methods to solve classroom problems; 4) it provides an opportunity to exchange views with subject specialists. Some of the suggestions for improving the programme are: 1) teacher-educators should also be involved in the programme; 2) wider publicity should be given at the state level to ensure large-scale participation of teachers; 3) papers selected at the state level should be awarded certificates of merit; 4) selected papers should also be published in different educational journals; 5) similar programme should be introduced for primary and elementary school teachers.

590 MADRAS. STATE INSTITUTE OF EDUCATION: Why people took to teaching - a survey. Hindu 19 January 1968, p.11, Cols. 4-6. 570 words.

Presents the significant findings of a survey of economic conditions and educational achievements of teacher trainees (5800 men and 4500 women in 129 institutions) in Tamilnadu (=Madras) State during 1965-66: 1) the main occupation of the parents of the trainees (61% male and 22% female) is agriculture; 2) parents of about 50% of the trainees read up to the fifth standard only and belonged to the backward classes; 3) parents of about 3% of the male trainees and 16% of the female trainees were in the teaching profession; 4) parents of about 27% of the trainees are illiterate; 5) parents of

82% of the trainees are in the income group Rs.250-1000 p.a.; 6) about 8% had chosen the profession because they had a liking for it; 7) majority of the male trainees are Hindus, while among the Christian trainees, there is a preponderance of women; 8) 80% joined the training before completing 23 years of age; 9) 50% secured good marks in the secondary school during examination; 10) lack of skill in laboratory work and poor personality were the weak points with most of the trainees.

591 MATHUR R B: Characteristics of Indian and American teachers. Lucknow, Department of Education, Lucknow University, 1966. 15p.

The following data relating to a sample of 1741 teachers of Uttar Pradesh State were collected: 1) urban-rural distribution; 2) age and sex; 3) nature of employment (government or private); 4) migration; 5) marital status; 6) education; 7) income and qualifications. The data were compared with those collected in a similar study of American teachers (Sloan Wayland and Edmund des Brunner. Some characteristics of American teachers. Bureau of Applied Research, Columbia University). The following are the important findings: 1) about 36.5% teachers are employed in cities, although only 12.9% of the total population lived in cities. In U.S.A. the proportion of urban and rural teachers is close to the urban-rural distribution of the total population; 2) unlike the U.S.A., the percentage of women teachers in India declines at the upper age levels, while the percentage of male teachers shows a gradual increase suggesting that male teachers in India do not change their profession frequently; 3) 20% teachers serve outside their home districts in India, as compared to only 9% in the U.S.A. Varying pattern of employment conditions in the U.S.A. explains the position; 4) women teachers appear to be more migratory than men; 5) in both the countries women receive lower salaries as they are generally less qualified; 6) the emoluments of Indian teachers are not only poor, but the rise in their income is slower and significantly less than that of their American counterpart. The salary of American teachers trebles by the time they are 50 or over. The corresponding increase for Indian teachers is only 24 percent; 7) in both the countries a positive correlation exists between income and age and years of formal schooling, although the situation in reality differs greatly.

592 SHAMSUDDIN: Influence of socio-economic factors on the teachers' career. Indian Education 1968, 7(6-7), 27-36; Teaching as a career. Educational India 1968, 34(10), 324-8.

A questionnaire eliciting information about marital status, number of children, age, parent's occupation and education, and family system was issued to a sample of 24 secondary school teachers of Madhya Pradesh. The analysis of the data of 200 teachers (136 men and 64 women) revealed the following: 1) the majority of men teachers belong to lower middle or middle class families, whereas the majority of women teachers come from upper middle and high class families; 2) most of the men teachers (83%) are married, while most of the women teachers (59%) are single; 3) the majority of teachers are between 25-30 years; 4) most of the parents of teachers are not highly educated; 5) the occupational status of the parents is not higher than that of middle class families; the fathers of 40% of the male teachers are cultivators and those of 48% of the female teachers are employed in the service sector. Teachers constitute a small percentage; 6) the majority of teachers (60%) have joint families with an average of 10 members. Some suggestions have been made for improving the economic status of teachers.

TEACHING METHODS

593 CHATURVEDI B N: Teaching of English poetry. Cenbosec News and Views 1968, 4(1), 13-14, 18.

The main objective of teaching poetry should be to develop aesthetic consciousness in students. Besides the prescribed poems, the teacher should also teach poems related to the life and experience of the pupils. The following steps have been recommended for teaching poetry: 1) preliminary preparations, followed by the introduction of the poem; 2) reading aloud with proper modulation of voice when the students should keep their books closed; 3) second loud reading by the teacher when the students keep their books open. The second reading is to deal with the impression and to suggest the meaning; 4) silent reading by the students to comprehend the subtle imagination of the poet; 5) using a limited number of comprehension test questions; 6) interpretation of the most difficult words and images. Only the imagery, figures of speech and other linguistic technicalities should be explained. The appreciation of rhyme, language, thought and emotion of the poem should be emphasized at this stage. The various devices used by the poet in composing the poem should also be discussed. Some devices have also been illustrated.

594 GLUSHENKOV V A, ZVEREV I D, SANYAL N K: Methods of teaching science subjects. School Science 1968, 6(1), 23-34.

The following methods of teaching and their use according to the specific character of the contents of science subjects have been discussed: A. Verbal methods as distinct from verbal teaching : 1) narration; 2) lecture; 3) talk, and 4) work at a book. B. Methods employing visual aids - 1) demonstration of natural objects; 2) demonstration of charts and models; 3) chalk drawing; and 4) demonstration of slides and films. C. Practical methods - three kinds of school experiments: 1) demonstration experiment;; 2) laboratory experiment, conducted by pupils while teacher is introducing new material, and 3) laboratory work.

595 GUPTA S L: Language experience in the teaching of English. Teaching 1968, 40(3), 93-4.

Orienting English teaching to a specific need of the society has been opposed, because basic skills, vocabulary and structure are common irrespective of the purpose of learning English. At whichever stage teaching begins, students should be exposed to variety of language experiences. Such experiences are more subtle and abstract at the college level than at the elementary or secondary stage. The whole programme of experiences and activities could be organized as tutorial system. The languago-experience approach would enable pupils to attain a minimum common standard of comprehension which may be used in any chosen field of activity. A list of experiences is given.

596 JOGLEKAR S: Experiment in teaching mathematics to standard IX with the technique of ability-grouping. Teacher Speaks, 1967, 4, 27-34.

The students were divided into five groups according to the marks obtained in mathematics at the annual examination of 1964: A. (Over 70%); B (60-70%); C. (50-60%); D. (35-50%); E. (below 35%). In case of groups of A and B the emphasis was on self-study on the basis of an enriched curriculum. Groups C and D were taught by the usual teaching method. The group E was given maximum guidance by the teacher. Eight tests including terminal and annual examinations were conducted to assess their progress. At the terminal and annual examinations a set of special questions was used for groups A and B. After each examination, the mistakes in the answer books were analyzed and classified and brought to the notice of the students who had to correct them. Lectures by experts were arranged and the students were given a variety of questions for solving. The results were: 1) though groups A and B did not show any improvement in their marks, their attitude to mathematics as a subject changed; 2) their speed of work was accelerated; 3) there was no appreciable rise in their speed of solving riders in geometry; 4) out of 43 students in group E, 28 showed a considerable improvement. The pupils, teachers and parents favoured the new technique. However, some of the objections raised were: 1) grouping was made on the basis of achievement rather than ability; 2) the method is opposed to the principle of democracy; 3) it might induce complexes among students; 4) teachers would be unwilling to teach the lowest group. Although some objections are only partly valid, additional financial assistance and technical help would remove the drawbacks. A workshop or a seminar of all the teachers following this method has been recommended for evaluation of the technique and exchange of ideas.

597. MoCLELLAN A L: Analogies help teach chemistry. Journal for Chemistry Teachers 1968, 2(2), 9-13.

The usefulness of analogies in teaching technical subjects has been illustrated with three chemical analogies, the first dealing with an analogy to the scientific method itself to explain how the scientific method is used to devise a model of nature, the second dealing with an analogy to explain the activation energy for a chemical reaction, and the last covering the energy level diagram for the hydrogen atom. Some benefits of analogies in teaching technical subjects are: 1) known material is used to introduce new knowledge; 2) they help in reminding the student of a scientific concept; 3) difficulties of technical language are separated from difficulties of scientific concept. However, analogies should be carefully thought out and only indigenous examples should be used. As the students progress, analogies should not be used further.

598 REGIONAL COLLEGE OF EDUCATION, BHUBANESWAR. DEPARTMENT OF SCIENCE: Methodology of science teaching. Regional College Record 1968, 4(7), 3-7.

The course in the methodology of science teaching consists of four inter-related sets of experiences: 1) study of the theory of science education; 2) observation-participation in which the student-teacher works with school students in the school environment; 3) pre-internship which initiates the student-teacher to actual teaching on a short-term basis; 4) internship in which the future teacher works with severl weeks, thus gaining experience in the role of a teacher. This course is introduced in the third and fourth years of the integrated four-year course. The following is the break-up: A. Third year. 1) objectives of science education - (8 weeks);

2) science curriculum planning (10 weeks); 3) instructional methods - (10 weeks); 4) observation and pre-internship (4 weeks) and 5) guidance and evaluation (4 weeks). B. Fourth year. 1) objectives of science education - (2 weeks); 2) science curriculum planning - (10 weeks); 4) internship programme - (4 weeks); 5) internship experiences - (4 weeks) and 6) review - (4 weeks). In addition there is a weekly observation-participation experience programme.

599 SHAH G B: Teaching of graphs. Teaching 1968, 40(3), 6 66-73.

The method of teaching graphs for developing the following skills in students have been described with examples: 1) construction and interpretation of statistical graphs; 2) selection or recognition of the type of statistical graph suitable for a specific purpose; 3) construction of a functional graph from a given equation or a formula and also solving equations using such a graph; 4) understanding concepts such as functionality, dependent variable, independent variable, slope, constant. Further the students should also develop the following skills: 1) accuracy and neatness in drawing; 2) correct labelling of graphs and 3) deciding suitable scale. In order to motivate pupils to study graphs, their usefulness should be stressed with examples The different concepts involved in graphs should be taught in depth with a few examples, to enable students to understand topics in analytical geometry and calculus.

600 VARDE D A: Improvement of educational standards - lesson unit plans. Maharashtra Educational Journal 1968, 16(9), 272-5.

Instead of merely asking teachers to teach a specific portion of a subject within a specified period, a programme of instructions prepared by efficient and experienced teachers should be made available to them. In order to prepare a good programme of instructions, the following points should be considered: 1) the objectives of the lesson unit; 2) the changes in the child's behaviour that are to be brough about; 3) the learning experiences to be used; 4) effective organization of these learning experiences; 5) evaluation of knolwedge, skill, attitudes and interests. Each of these points has been explained with reference to science teaching.

TESTS AND MEASUREMENT

601 AMIR SINGH: Standardization of Hindi version of Hundal general mental ability test. Psychological Studies 1968, 13(1), 12-15. 3 ref.

The Hindi version of the test (Hundal P S. Manual of general mental ability test, Chandigarh, Department of Psychology, Punjab University, 1962) was administered to a sample of 1426 boys and 774 girls reading in classes VII-XI in rural and urban schools. The reliability was computed by the split-half method, and the standard errors of measurement for different class groups were determined. The norms of the test have been expressed in terms of normalized standard scores (T-scale and C-scale) which were obtained using Guilfor's method (Fundamental statistics in Psychology and Education, New York, 1956.) The validity (and also test and re-test reliability) in terms of construct validity and content validity (including factorial validity) is quite satisfactory and it can be tried with other Hindi-speaking children of the age group 13-17.

602 KAPOOR K, KAPOOR S D: Validation of the neuroticism scale questionnaire through anxiety manifestations. Journal of Psychological Researches 1968, 12(2),

The Hindi version of NSQ (Scheier I H, Cattell R B. Handbook for the Neuroticism Scale Questionnaire. Champaign, Illinois, Institute for Personality and Ability Testing, 1961) was administered to a group of 29 students (control group) who had just completed the practical examination in psychology. It was also administered to another group of 20 students (experimental group) prior to the examination. The experimental group was assured that the test had no relationship with the practical examination. The two groups were perfectly normal, being drawn from the same college population with all comparable characteristics. The statistical analysis revealed significant difference between the mean scores of the two groups in respect of the factor anxiety, while no such difference was found in respect of other three factors viz., tender-minded sensitivity, dependence, and depression. Despite the assurance, the experimental group manifested greater anxiety. The results show the high discriminative ability of NSQ with regard to the degree of anxiety in a normal population in a most natural setting and prove the validational aspect of the test as such.

603 **MEHROTRA K K:** Comparative study of WISC and Raven's progressive matrices. Psychological Studies 1968, 13(1), 47-50. 7 ref.

Wechsler Intelligence Scale for Children (WISC) and progressive Matrices (PM) were individually administered to a sample of 45 students of 9th standard (age group 13-17) of a Delhi school, and belonging to the higher socio-economic group. The results show that although the two tests have much in common, they are not interchangeable; and specially in clinical setting, PM should not be regarded as a substitute for WISC. The reason for the difference may be that while PM employs only one type of test material, WISC provides greater opportunities for flexibility and versatility of mental activity to testees and more sources of qualitative interpretation of responses and behaviour to examiners. If WISC is adapted to Indian conditions and administered to a wider sample, it is likely to give higher correlation with PM. The study further revealed that while adapting the test to Indian conditions, it would be necessary to modify considerably the sub-tests viz. Information, Vocabulary, Picture Completion and Picture Arrangement.

604 **MUTHAYYA B C, LALITHAMBAL R:** Case for verbal-frustration test (V-FT). Journal of Psychological Researches 1968, 12(1), 48-50. 3 ref.

An attempt has been made to validate a verbal form of the Madras picture frustration study (MP-F) (Muthayya B C. A study of level of aspiration and its relation to reactions to frustration among adolescents. Thesis. Madras University. 1960) to explore whether it could serve as a substitute for MP-F for studying frustration-reaction in selected samples. MPF was first administered to 25 students (age group 14-15) of local schools. After a lapse of 14 days, VFT was administered to the same group along with another group of 25 boys. The correlations between the scoring categories in the two tests and their mean S.D. and t ratio indicated that VFT could serve as a substitute for MPF in assessing frustration-reaction. However, the scoring scheme needs further refinement to differentiate two categories, viz, ego-defensive and obstacle-dominance.

605 **PHATAK P:** Draw-a-man test for Indian children. Baroda, the Author, 1966. ii, 98p. 57 ref.

The test based on the scale developed by F.L. Goodenough (Measurement of intelligence by drawings. 1926) is suitable for quick measurement of intelligence of children in the age group 6-10. For critical individual study, however, the test should be supplemented by some other tests. The publication presents the following: 1) history and methodology of the scale; 2) results of different studies over a period of 10 years to ascertain the validity and reliability of the scale. The scale was found to be valid and reliable to an acceptable level; 3) standardization of the test. The age norms for ages 6-10 on the scale were calculated on samples of drawings collected from 5 environmental levels. The norms were calculated in the form of averages, standard scores as deviation of IQS and their percentile ranks. The confidence bands have also been mentioned. Separate norms for boys and girls have been presented in 12 tables; 4) manual of the test.

606 PILLAI K S: Mathematical talent. Mathematics Education 1968, 2(2), 34-6.

Construction of a test for the identification of mathematical talent in the secondary schools in Kerala has been proposed. Decisions have to be taken in respect of types of tests dealing with different abilities (e.g. numerical ability, abstract thinking, problem solving, scientific outlook), number of sub-tests and number of items under each, and approaches to prognosis tests. A section would deal with intelligence, attitudes, interests and personality traits. The test would be aimed at measuring only aptitude or prediction, but a thorough adjustment of the individual's abilities.

607 SINHA A K: On the test-retest reliability of first and second halves of personality questionnaires. Psychological Studies 1968, 13(1), 29-37. 34 ref.

The following hypotheses were tested: 1) in a lengthy personality inventory (items exceeding 200), the test-retest reliability of the second half would be poorer thanthat of the first half; 2) difference between the test-retest reliabilities of the two halves would be smaller if the test is administered in two sittings separated by a suitable interval (split administration) instead of a single sitting; 3) differences between test-retest reliabilities of the two halves of questionnaires of smaller length (items being 100) would be smaller than that of lengthy questionnaires (items exceeding 200). A Hindi translation of an adaptation of Guilford-Zimmerman Temperament Survey (8 sub-scales with 30 items for each) was administered in groups to undergraduate college students and readministered to the same group after an interval of 30 to 40 days. The conclusions and suggestions are: 1) on account of the decline of interest or willingness towards the end, the test-retest reliability of the second half is appreciably reduced; 2) splitting a lengthy questionnaire (consisting of monotype items) into small parts and spacing the administration over more than one sitting seem to be profitable; 3) sets of shorter scale for each of the different variables administered separately in time seem to be more useful than one lengthy composite questionnaire.

608 SINHA J B P: Test of dependence proneness. Journal of Psychological Researches 1968, 12(2), 66-70, 9 ref.

The following steps were involved in the development of a twenty-item scale for measuring the dependence proneness (DP) of college students: 1) a total of 50 items (in Hindi) consisting of behavioural descriptions was administered to 40 students of Ranchi University (Bihar) in regular classroom situations. They were asked to judge the applicability of each item on a five-point scale. Twenty items with discrimination indices ranging from .18 to .43 were selected to constitute the final DP scale. The split-half reliability after correcting for attenuation was .67; 2) validity score was obtained by correlating scores on the DP scale with degrees of dependence as expressed in sentence completion test administered to another group of 26 students. The correlation co-efficient between the two DP scores was .55; 3) in order to understand the structure of DP the statistical technique 'similarity analysis by reciprocal pairs' (McQuitty L L. Educational and Psychological Measurement 1966, 26(4), 825; 1967, 27(2), 253) was tried by administering the scale to a sample of 185 undergraduate students of Ranchi University. Four structures were revealed: affection-affliction, lack of internal control, evading responsibility, and conformity.

609 TAMHANKAR V S: Norms for the X grade on advanced progressive matrices (1962) and some correlates of intelligence. Journal of Psychological Researches 1968, 12(2), 85-9. 5 ref.

Advanced Progressive Matrices were administered as a speed test to a sample of 952 boys in grade X of 18 Marathi-medium schools in Poona City (Maharashtra). Grade norms were worked out on the basis of test scores, and some other relevant relationships were studied. The general findings were as follows: 1) the norms obtained for the sample of urban boys were slightly higher than the estimated norms given in the guide (Raven J C: Guide to the standard progressive matrices sets, A,B,C,D and E. London. 1960); 2) significant differences in mean scores in favour of younger boys were found between different age groups within the same grade; 3) the differences in mean scores of higher and lower income groups as well as of different caste groups were also significant, suggesting that socio-economic factors influence test performance; 4) a significant, but rather low positive correlation exists between academic performance and test scores; 5) the correlation between n Ach scores on projective tests and scores on Raven's test was barely significant at .05 level.

610 TEWARI J G, TEWARI J N: On extremes of personality adjustment as measured by adjustment inventories. Journal of Psychological Researches 1968, 12(2), 75-81. 21 ref.

The personality adjustment inventory by the Department of Psychology, Aligarh Muslim University (Umruddin, Jamil Quadry, Studies in youth welfare, 1964) was administered to 281 students of post-degree and degree colleges, and 13 highly mal-adjusted and 13 highly adjusted students (age group 18-21) were selected. T.A.T., P-F. Study and Impulse, and Ego and Super-ego test (I.E.S) were then administered to ascertain whether highly adjusted and highly mal-adjusted, as identified by using the adjustment inventory, differ with respect to such factors as ego-strength and functioning, autonomy, self-acceptance, and inter-personal competence. The results indicate that the personality inventory which is apparently based on out-dated concepts of adjustment can partially differentiate between extremes of adjustment in a way consistent with current personality constructs. Its success is partial because its measurement of the real components of adjustment is incomplete as well as indirect and, therefore, leaves much to be done by way of objectivity, refinement and comprehensiveness.

611 VIDHU MOHAN, SINGH S D, KALRA S: Junior personality inventory. Journal of Psychological Researches 1968, 12(1), 7-11. 14 ref.

A junior personality inventory was constructed on the model of Eysenck's inventory (British Journal of Educational Psychology 1965, 35, 362) to measure two personality dimensions, viz., neuroticism and extraversion. From an original list of 107 items, 60 were finally selected after performing item analysis and measuring the reliability co-efficients for the two dimensions in each of the two preliminary tryouts. The final data were obtained on a Hindi-knowing sample of 400 children of Delhi schools in the age range 11-16. The mean scores of neuroticism and extraversion were 14.8 and 14.0 respectively (corresponding S.Ds were 5.6 and 4.2 respectively). The co-efficient of reliability for neuroticism (.85) was higher than that for extraversion (.77). C-scale norms were also constructed.

612 **BAROOAH S R:** Farmers training and education. Indian Journal of Extension Education 1967, 3(4), 205-9.

Describes the scheme for the systematic training of farm families in the High Yielding Variety Programmes (HYV) to be implemented during the Fourth Plan period. It envisages to cover 100 HYV Programme districts involving about five million farm families. The object is to put agriculture on a more scientific and self-sustaining basis by creating proper local leadership. The schemes cover all three segments of the farm family, i.e. practising farmers, farm women, sons of farmers or young farmers. The three phases covering both institutional and non-institutional training are: 1) wider, field-based training of short duration dealing mostly with the package of practices carried out through production-cum-demonstration training camps; 2) institutional phases (a) covering farmers, young farmers, and farm women, and dealing with topics of special interests and (b) creating a nucleus in scientific farming through well-organized courses of varying duration; 3) Farmers' Voluntary Discussion Group (a) for creating a framework for production-oriented voluntary continuation of education to increase agricultural production and (b) as a follow-up of training.

613 **INDIA. MINISTRY OF LABOUR, EMPLOYMENT AND REHABILITATION. DEPARTMENT OF LABOUR & EMPLOYMENT:** Mines vocational training rules 1966. Delhi, Manager of Publications, 1967. 12p.

In exercise of the powers conferred by Section 58 of the Mines Act 1952 (Act no. 35 of 1952), rules relating to the following aspects have been framed: 1) persons to be trained; 2) general vocational training - scope and standard; 3) refresher training - scope and standard; 4) training of special categories of employees; 5) training centres and arrangements for training; 6) financial assistance to trainees and issue of certificates. The syllabi for the following courses of training have been given in the annexure: 1) theoretical and gallery training for surface and open-cast workers; 2) theoretical and gallery training for workers below ground; 3) special additional training for entrants to gassy mines; 4) refresher training; 5) training for timber mistries; 6) training in the handling and use of explosives; 7) training on shot-firing; 8) training in gas-testing.

614 INDIA. PLANNING COMMISSION. COMMITTEE ON PLAN PROJECTS. AGRICULTURAL TEAM: Education, training and extension. (In its Report on improved agricultural implements in India. New Delhi, the Committee, 1968. 55-63).

The terms of reference included the following: 1) study of training facilities in agricultural engineering, standards of training, number of trainees, scope for their employment, etc.; 2) arrangements for training village artisans and farmers; 3) follow-up of training programmes. Some recommendations are: 1) increasing the admission capacity of existing agricultural engineering colleges and introducing the subject in other agricultural universities; 2) ensuring closer co-ordination between agricultural engineers and agronomists for practical and field work; 3) improving the training schemes of village artisans in workshops attached to Gram Sewak Training Centres; 4) setting up more tractor training centres to cope with the increasing demand of trained tractor operatorsin the Fourth Five Year Plan; 5) organizing regional level training programmes in modern techniques of implement manufacture for foremen; 6) organizing short courses to train farmers, village volunteers and rural youths in the use of improved agricultural implements; 7) organizing regular refresher courses for village level workers, agricultural engineers, district agricultural officers, block development officers and agricultural extension officers to acquaint them with the latest developments in agricultural implements; 8) organizing refresher courses at selected institutes for instructors attached to the workshop wings of Gram Sewak Training Centres; 9) utilizing the services of organizations engaged in the maufacture of agricultural implements in training village artisans.

615 PYLEE M V: Linking education with productivity. Yojana 1968, 12(11), 7-9.

The special responsibilities of institutions of technological education in increasing the productivity of the nation have been stressed and the following suggestions have been made for effective collaboration between education and industry: 1) industries should participate in the planning and execution of teaching processes; 2) industries should provide properly planned and efficiently executed training programmes for technology students ; 3) teachers should get special assignments in industries in order to acquire the necessary orientation and to be acquainted with latest developments; 4) industries should give research assignments to technological institutions; 5) joint seminars, conferences and group studies should be frequently held.

616 **RAO B R R**: Technical education and cooperation between industries and institutions. Regional College Record 1968, 4(8), 5-9.

The following agencies should work in a concerted way for the development of a national manpower programme: 1) education departments and institutions; 2) government technical departments (railways, public works, telecommunication etc.); 3) public and private sector industries; and 4) corporate professional institutions. The responsibility of industry to make technical education effective, meaningful and complete has been emphasized. The following areas of cooperation between training institutions and industry have been enumerated: 1) development of sandwich courses, in-service training, on-the-job training etc. which ensure active cooperation between technical institutions and industries; 2) training for students in industries using the resources of teaching institutions and industries having their own training schools; 3) providing financial assistance by industries to different institutions for expanding training facilities and to undertake research on their behalf; 4) participation of industries in deciding the standard of education, courses of study; 5) conducting manpower surveys jointly by industries and institutions; 6) arranging visits of teachers to industries; 7) participation of engineers from industries in teaching activities.

617 **SHANTHAMALLAPPA B L**: Training of technicians and craftsmen. Journal of the Institution of Engineers (India) 1968, 48(9), 485-7.

Describes the training courses in communication engineering at technician and craftsman levels: 1) Technician - a post-secondary school course of two to three years' duration leading to a diploma, and conducted by the State Boards for Technical Education. The emphasis is on maintenance, servicing and repairs of communication and electronic equipment. At the higher level, a broad training is given in science, mathematics and other allied fields of communication engineering, like fitting, carpentry and electrical wiring, followed by an intensive practical training in design, maintenance and servicing of communication equipment; 2) Craftsman - a two years' course leading to a certificate and organized by the Ministry of Employment and Training, is generally open to students who had studied up to secondary school level. The training helps pupils in identifying the components of any equipment, and to work with them. The suggestions offered are: 1) proper assessment of the training programmes; 2) modernization of the syllabus; 3) equalization of courses offered by different agencies; 4) fixation of suitable salary scales for technicians and craftsmen as well as teachers; 5) development of closer links between training institutions and industries for suitable placement of trainees; and 6) exchange of teachers.

618 Training for school drop-outs [Editorial]: Hindu 5 May 1968, p.6, cols.1-3. 504 words.

The activities of the vocational training centres set up by the Social Welfare Department of the Government of India for pre-vocational training of young school drop-outs as reported in the annual report of the Department have been appreciated. The training of three years' duration in three groups of trades, (carpentry, blacksmithy, and fitting, turning and sheet-metal work) has been found very useful. In view of the failure of the normal school system as a whole and the diminishing demand for unskilled labourers and even for those who are skilled in traditional handicrafts, the following suggestions have been made: 1) devising a special scheme of training for those children who do not opt for academic education; 2) dovetailing the training imparted by pre-vocational schools with entrance into technical schools and Industrial Training Institutes (ITIs). ITIs which so far admitted only matriculates, should also admit trainees from pre-vocational schools who have attained the age of 15; 3) expansion of technical schools and ITIs to cope up with the rising demand for semi-skilled workers of all types; 4) immediate attention of the State Governments to vocational and technical education, so far neglected by them.

WASTAGE AND STAGNATION

619 CHAWLA M: Reduction of wastage and stagnation in secondary schools. Teacher Speaks 1967, 4, 129-34.

Some causes of wastage and stagnation have been discussed and remedial measures suggested: 1) economic factor seems to be the greatest single cause. Financial assistance and free instructional material should be provided to poorer students. However, improvement of the general economic condition of people is the best solution of the problem; 2) social causes are mainly responsible for wastage and stagnation among girls. Part-time education, opening of girls' schools in backward areas, publicity through radio, press and documentaries and also by social workers in backward areas are likely to improve the position; 4) inefficiency of the educational system, defective examination system and the lack of attractiveness of schools are also contributing factors. Other suggestions include: 1) dividing the class in a number of homogeneous groups for the purpose of instruction; 2) reducing the curriculum load; 3) improving the teaching of English and Mathematics in which a large number of students fail; 4) distribution of the syllabi uniformly over different examinations; 5) introducing vocational and educational guidance in schools.

620 GOVERNMENT COLLEGE OF EDUCATION, BILASPUR (MADHYA PRADESH): Wastage and stagnation in secondary education. Bilaspur, the College, 1968. 32p.

The study covers 1322 students admitted to class IX in 1963-64 in the 10 higher secondary schools of Bilaspur town. The progress of the pupils was studied until they completed the higher secondary course. Data were gathered by questionnaire survey and interview of teachers. The study revealed 21% wastage and 28% stagnation. The following causes have been identified: 1) personal - mental abnormality, lack of intelligence, and ill-health; 2) home environment - poverty, and illiteracy of parents, quarrels in the family; 3) school environment - increased subject load, uninteresting studies, defective teaching and examination methods, lack of instructional material, transport problem, lack of rapport among teachers, students and parents etc. Subject-wise analysis indicates highest percentage of failures in English followed by mathematics. Suggested remedial measures are: 1) close collaboration between teachers and parents; 2) creation of interest in pupils for studies; 3) providing guidance to schools and teachers by teacher training school; 4) subject-wise inspection of schools; 5) adopting teaching methods suited to class-room situations.

621 PATIL M G: Guidance as a means of reducing wastage and stagnation in secondary schools. Teacher Speaks 1967, 4, 122-8.

The study was conducted with three batches of students admitted to class IX during 1960-61, 1961-62 and 1962-63 in a multipurpose high school in Nagpur (Maharashtra) offering diversified courses. Assistance of experts from the Institute of Vocational Guidance and Selection was obtained for allocating students to different courses. Recommendations were made on the basis of aptitude test scores, marks obtained in different subjects in the previous annual examinations, and student preferences. Students were divided into three groups: 1) students accepting the recommendation in full; 2) students accepting the recommendation in part, and 3) those rejecting the recommendations. The examination results of the three batches were studied for three consecutive years (i.e. two successive annual examinations and the higher secondary examination). The findings are: 1) the results of the first group were better; 2) the number of unsuccessful students and that of students passing the higher secondary examination in the third division were more in the other two groups; 3) stagnation and wastage were more in the third group. Students either migrated to another school or dropped their studies.

622 KULKARNI S D: Study of differential educational attainment of men and women in India. (In Shreemati Nathibai Damodar Thackersey Women's University, Bombay. Golden Jubilee Commemoration Volume, Bombay, the University, 1968. 160-72.

The census data relating to literacy have been analyzed and the following observations have been made: 1) in spite of an increase in literacy rate since 1891, the difference between both crude and effective literacy rates for male and female had widened; 2) the rates of difference also vary widely between states; 3) although literacy rates are higher in urban areas, the difference in effective literacy rates for male and female is more or less the same in urban and rural areas; 4) the gulf between the educational attainments of men and women, both in urban and rural population, widens with the increase in the level of education. However, the proportion of women students to the total number of students is gradually increasing since 1951; 5) the level of educational attainments is very low in the case of scheduled castes and scheduled tribes, both in the rural and urban areas; 7) the difference in educational attainments of men and women widens with an increase in the level of education even in the case of scheduled castes and scheduled tribes, both in rural and urban areas. Thus there is a great need to encourage women's education and stress should be placed on educationally backward areas.

623 TRIPATHI K: Access of girls to education. Social Welfare 1968, 14(12), 8-9.

The important factors retarding the progress of girls' education at different stages have been discussed: A. Primary education - 1) lack of school facilities in different areas; 2) partial enforcement of compulsory education. Better buildings, adequate staff and equipment, and providing conveyance to pupils and inducements to parents have been recommended; B. Secondary education - 1) indifferent attitude of parents; 2) poor economic condition; 3) lack of secondary schools in rural areas; 4) early marriage and motherhood of girls; 5) the belief that educated girls do not make good mothers and good housewives; C. Higher education - 1) absence of vocational training; 2) expensive college education. Free education up to the secondary stage, college for vocational training for girls and education of parents regarding the need for girls' education have been recommended.

WORKERS' EDUCATION

624 HOPKINS P G H: Workers' education in India. Workers' Education 1968, May, 2-8.

A review has been made of the following major criticisms of the training scheme conducted by the Central Board of Workers'Education: 1) it purveys government, Congress party or I.N.T.U.C., or employers' propaganda; 2) it is over-uniform and stereotyped; 3) the syllabus is based on a narrow conception; 4) spontaneity, popular support and responsiveness are lacking. Insufficient attention is paid to academic standards. It has been pointed out that these are based on wrong pre-conceived notions. The following suggestions have been made: 1) concentration of resources on providing more and better unit level courses; 2) initiating a carefully-planned long-term publicity campaign about the Board's activities through different media and making individual approaches to key people; 3) offering reluctant employers, managers and suspicious trade union leaders the chance to visit local training classes to clarify their doubts about the course; 4) maintaining regional contacts with key members of the staff of the 30 universities and the 12 colleges of higher education comprising the Indian Universities Adult Education Association, technical colleges and training institutes and also with key members of adult education literacy committees.

List of Periodicals Abstracted

AICC Economic Review: V 19 Nos 11-13, 15
ASPBAE Journal: V 2, No 4
Bulletin of the West Bengal Headmasters' Association: V 17, No 6
Cenbosec News and Views: V 4, No 1
Christian Education: V 18, No 2
Eastern Pharmacist: V 11, No 24
Education and Psychology Review: V 8, No 2
Education Quarterly: V 19, No 1
Educational Forum: V 13, No 1
Educational India: V 34, Nos 9-10
Educational Review: V 74, No 4
Haryana Journal of Education: V 1, No 2
Indian Education: V 7, Nos 3,5,6-7
Indian Journal of Adult Education: V 29, Nos 3,4-5
Indian Journal of Extension Education: V 3, No 4
Indian Journal of Medical Education: V 7, No 3
Indian Journal of Pediatrics: V 35, No 242
Indian Journal of Pharmaceutical Education: V 2, No 1
Indian Textile Journal: V 78, No 930
Journal of the Association of Engineers: V 43, Nos 1-2
Journal for Chemistry Teachers: V 2, No 2
Journal of Education and Psychology: V 26, No 1
Journal of Educational Research and Extension: V 4, No 4
Journal of the Gujarat Research Society: V 13, No 2
Journal of the Indian Academy of Applied Psychology: V 5, No 2
Journal of the Indian Institute of Architects: 1968 Golden Jubilee No
Journal of the Indian Medical Profession: V 15, No 1
Journal of the Institution of Engineers (India) (General Engineering): V 48, No 9
Journal of Nutrition and Dietetics: V 5, No 2
Journal of Psychological Researches: V 12, No 1
Madras Information: V 22, No 5
Maharashtra Educational Journal: V 16, No 9
Mathematics Education: V 2, No 2
Naya Shikshak: V 9, No 4; V 10, No 3
NIE Journal: V 2, No 5
Psychological Studies: V 13, No 1
Psychology Annual: V 2
Quest: 1968, No 57
Rajasthan Board Journal of Education: V 4, No 2
Regional College Record, Bhubaneswar: V 4, No 7-8
School Science: V 6, No 1
Social Welfare: V 14, No 12; V 15, No 1
Teacher Education: V 2, No 3
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Technical Manpower: V 10, No 5
University News: V 6, Nos 3, 5
Vigyan Shikshak: V 12, No 2

Workers' Education: 1968, May
Yojana: V 12, Nos 11,12

Newspapers:

Amrita Bazar Patrika Centenary Supplement: 12 Apr
Aryavarta: 12,16,23 Apr
Assam Tribune: 3,16 Apr
Economic Times: 16 June
Hindu: 19 Jan, 5,7,31 May, 4 June
Hindustan Times: 16,26,29,31 May, 23 June
Hitavada: 5,21 Apr
Mail: 10 May
Rashtradoot: 24 Apr
Sunday Tribune: 21 Apr
Times of India: 3,25 May, 4 June

SPECIAL SECTION

EXAMINATION AND EVALUATION

A155 AGARWAL L N: Improving essay type examinations. Cenbosec News and Views 1966, 2(2), 15.

The merits and demerits of essay type examinations have been discussed. In order to make such examinations more reliable the language of the questions should be improved, the questions should be split into a number of small units and specific marks allotted to each unit. Students should know the scheme of marking. For increasing the objectivity in marking the factors to be measured should be decided first. A model answer giving all the points with respective emphasis should be prepared. This would provide a common frame of reference for marking by different examiners. Instead of marking all questions at a time, a single question in all the papers should be marked. This would enable the examiner to have a comparative view of the answers of all the examinees for the same question.

A156 ALL INDIA COUNCIL FOR SECONDARY EDUCATION: [Recommendations on examinations]. (In India. Ministry of Education. Reconstruction of secondary education. Delhi, Manager of Publications, 1967. 57-63).

The Council set up by the Ministry of Education in 1955 made several recommendations in its different meetings. The important recommendations are: 1955: 1) State Boards of Secondary Education should undertake research in construction of tests; 2) teacher education colleges should conduct research on improving essay-type of examination, perfecting short-answer type of tests and constructing standardization achievement tests. 1956: 1) appointment of a committee to examine the following: (a) use of objective-type questions in written examinations; (b) modification of essay-type questions to minimize subjective element in their evaluation; (c) giving appropriate weightage to the objective and essay-type questions; (d) deciding the nature of examinations for practical subjects; (e) considering the pupils' performance in the periodical tests and in the school work for final assessment; 2) preparation of achievement tests by the State Boards of Secondary Education and their evaluation by a Central Committee. 1957: 1) causes of failures in examinations were discussed and the possibility of conducting examinations at two levels, ordinary and advanced, in each subject should be examined by the State Boards; 2) the jurisdiction of the State Boards should be suitably limited to reduce the number of candidates at a single public examination; 3) objective-type questions should be introduced by the State Boards after giving due notice to schools; and 4) wider publicity should be given to the principles underlying examination reform. 1960 and 1961: State Education Departments should set up State Evaluation Units to implement the programmes of examination reform.

A157 ALL INDIA COUNCIL FOR SECONDARY EDUCATION: Seminar on examinations at Bhopal (1956). (In National Council of Educational Research and Training. Directorate of Extension Programme for Secondary Education. Progress of examination reform in India. New Delhi, the Council, 1962, 2-3).

The seminar which was attended by representatives from State Boards of Secondary Education, universities conducting matriculation examinations, and educationists interested in the examination problem considered the entire field of examination in great detail. The recommendations were grouped under four heads: 1) general examination system, 2) cumulative records; 3) achievement and aptitude tests; and 4) administration and action research. Some of the significant recommendations are: 1) questions set at the external and internal examinations should include essay-type, short essay-type and objective-type; 2) weightage should be given to sessional work; 3) internal school examination should be suitably modified to ensure the successful working of the external examination system; 4) a bureau of examination research should be set up by each State Board of Secondary Education. The bureau should work in close collaboration with teacher education colleges, university departments of education, and other institutions in the State engaged in similar research activities.

A158 BISWAS M: Examinations and their problems in India. Indian Education 1968, 7(6-7), 4-17. 13 ref.

The nature and impact of examinations at primary, secondary and university stages have been discussed. The major problems of the Indian examination system are: 1) high percentage of failures; 2) unwieldy number of candidates in school final and university examinations; 3) defective technique of examination. A combination of objective-type examination which tests assimilated knowledge, and essay-type examination which tests cumulative knowledge, has been suggested. Techniques and practices prevalent in the United Kingdom and America and their relevance to Indian conditions have been pointed out. The following steps have been recommended for the improvement of the existing examination system: 1) inclusion of a syllabus for educational measurement and maintenance of cumulative record cards in the teacher education programme; 2) preparation of a well-defined syllabus for all subjects in all stages of education; 3) ban on the publication of 'notes', 'examination-made-easy' etc.; 4) improvement in the methods of paper-setting and in preparing the marking-scheme; 5) use of statistical methods in examining, standardizing marks, and in preparing results; 6) active co-ordination between the curriculum and syllabus, examination, and statistics and research departments of the State Boards of Secondary Education and universities.

A159 COMMITTEE ON THE INDIAN EXAMINATIONS REFORM PROJECTS (1959): [Extracts from recommendations]. (In Vice-chancellors' Conference, Khadakvasla, Maharashtra, 1960. Proceedings. New Delhi, Ministry of Education, 1961. 112).

Some of the recommendations are: 1) the first step is to formulate course objectives and define them in terms of student behaviour; 2) the examiner should be familiar with, and free to employ, different kinds of test techniques suitable for evaluating student achievement under the objectives in view; 3) for a public or comprehensive examination, the chairman of the board of paper-setters should invite questions from teachers of the affiliated colleges. Where this is not possible the paper-setters should set questions suitable for assessing the course objectives; 4) the board of paper-setters should include teachers of affiliated colleges and teachers of other universities; 5) performance in classroom tests, seminars, discussions and tutorials, tutorial exercises, and term papers should be given a weightage of 20% of the total marks; 6) a systematic method should be devised for the assessment of essay-type answers and each script should be assessed by two examiners; 7) an evaluation unit should be set up in each university.

A160 DESHPANDE M G: Few suggestions to the university and the S.S.C.E. board. Progress of Education 1960, 34(7), 233-5.

The reports of examiners at higher levels of examination are laconic and usually assess the quality of the answers as a whole in a few sweeping general remarks. They reach the institutions concerned rather late and are of no use to teachers. This practice should be replaced by the publication of the best answers in each subject at the various examinations. This will benefit students, teachers and the examiners. The students preparing for the next examination would know the level of attainment of the best candidates in previous year in a particular subject. The examiners would also become more careful in marking. The publication of the best answers in different subjects would be useful in measuring the extent to which the current criticism of falling academic standards is justified.

A161 D'SOUZA A A: Case for oral examinations in schools. NIE Journal 1968, 2(5), 28-31.

Introduction of oral tests both in the internal and external evaluation schemes of schools has been urged for developing effective oral communication skills in pupils. Some of the tests successfully used in U.K. for testing foreign languages and English are: 1) aural comprehension tests; 2) reading tests; 3) conversation tests; 4) one or two-minute talks. An experiment in oral examination at the middle school level undertaken by the West Bengal Anglo-Indian schools in history, geography, and science has been described. Teachers framed 24 questions and gave them to students a month prior to the examination. Six pieces of cardboard, each containing four of the 24 questions,were placed on the teachers desk. The candidate was asked to pick up any one piece of cardboard, study the questions for two minutes and answer each question in [illegible] minutes. Each answer was evaluated simultaneously by two teachers and the average of the two examiners' marks was the child's final mark for that particular question and the total marks for the four questions determined the final marks for the oral test.

A162 DEVIDSON M D: Dimensions for setting questions in board examinations. Teacher Education 1963, 8(1), 58-62.

Paper setters should consider the following points while constructing questions: 1) selection of significant and important topics from the syllabus; 2) the object of the question papers is to test all the learning outcomes and not the capacity to memorize selected topics; 3) selection of the type of questions which would test effectively, economically and objectively; 4) textual questions being based on factual information only encourages the habit of memorization while practical life situations enable the testing of real understanding and skill; 5) questions should be suited to the level of pupils. They should not either be too difficult or too simple; 6) questions should be such as to enable the examiner to discriminate properly between bright and poor students; 7) questions should be suitably worded so that their scope is clearly indicated. The other dimensions discussed are: time factor, option to pupils in answering questions, and allocation of marks.

A163 GAYEN A K, NANDA P B, MATHUR R K, DURAI P, DUBEY S D, BHATTACHARYYA N: Measurement of achievement in mathematics - a statistical study of effectiveness of board and university examinations in India. Kharagpur, Indian Institute of Technology (for Research Projects on Examinations, Ministry of Education), 1961. vii, 176, xxxx, xivp.

A sample of 3,717 answer scripts (10.2% of the total population) in compulsory mathematics of the School Final Examination (1952) conducted by the West Bengal Board of Secondary Education was subjected to the study. The lines of investigation were: 1) analysis of the nature of paper setting on the basis of a statistical study of the performance of students (Chapter II); 2) study of the discriminating power and difficulty value of question-items (Chapters III & IV); 3) examination of the relevance of the question paper to the prescribed syllabus and the principles underlying the syllabus (Chapter V); 4) estimation of the reliability and validity of the question paper and exploring the possibility of standardization of question papers for a public examination (Chapter VI); 5) subsidiary investigation into comparative performance in mathematics and languages (Chapter VII); 6) study of the special aptitude, for mathematics, of students offering mathematics as an elective subject in addition to compulsory mathematics (Chapter VIII); 7) study of the effect of poor performance in compulsory mathematics at the school final stage on achievement in mathematics at the college level (Chapter VIII); 8) examination of the objectives of teaching mathematics vis-a-vis the question papers under survey (Chapter IX). Some observations on setting question papers and assessing answer scripts in mathematics have been made in Chapter X. The evaluation concept in education has been discussed in Chapter XI. Summary and conclusions are given in Chapter XII.

A164 GAYEN A K, PHILIP P J: Survey of examinations in Indian universities. Indian Journal of Educational Administration and Research 1961-62, 2(3-4), 1-18.

Presents a comparative study of systems of examination obtaining in 38 Indian universities based on the replies to a questionnaire circulated by the authors. The report has been divided into 7 sections: 1) nature of examinations; 2) internal assessment; 3) question papers; 4) marking of answer papers; 5) classification of results; 6) research in examination; and 7) reform in examination system.

A165 HILL W H: Examination improvement and examination reform. Journal of Education and Psychology 1964, 22(2), 63-9.

The expression 'improvement' and 'reform' of examinations should be distinguished from each other. Reform suggests some kind of fundamental change in the whole system. The following suggestions have been made for improving the examination system: 1) broadening the scope of educational objectives on which examinations should be based; 2) testing different kinds of achievement of students; 3) recognising that acquiring information is only a part of the educational system; 4) replacing traditional essay-type questions by objective-type tests; 5) allowing no option in a question paper. The system of high school leaving examination needs a thorough change. Examination at the end of the secondary stage should have two distinct purposes: 1) to certify students to enter life, and 2) to certify such of them to enter universities as may benefit by higher education.

A166 HILL W H: Internal assessment and external examinations. Progress of Education 1964, 39(2), 44-51.

The importance of internal and external examinations, the relationship between them, and some problems associated with internal assessment have been discussed. The following observations have been made: 1) both external examinations and internal assessment are necessary and both need improvement; 2) tests should be used periodically in every class in secondary schools; 3) cumulative records should be carefully maintained for making internal assessment; 4) evaluation and examination should not be considered as equivalent. Evaluation is a broader concept and not all kinds of evaluation are to be used for assessment of students; 5) the internal and external marks should not be combined, but students should be admitted to external examinations provided they attain an acceptable level of proficiency in internal assessment.

A167 HILL W H: Problems of internal assessment. Rajasthan Board Journal of Education 1966, 2(4), 3-10. 4 ref.

A system of internal assessment provides periodical evidence for judging students' development, serves as a motivating influence on students, forms the basis for school marks indicating the relative attainment of individual students, and enables the school to judge the effectiveness of various aspects of its programme. Assessment should include all aspects of the student's learning and his development of personal traits, which are observable and measurable. The primary focus should be on academic achievement. Assessment should be primarily done by teachers and they should be given some free time every week for this purpose. The tools for assessment should include tests, examinations, checklists, rating scales, inventories, etc. A cumulative record should be maintained for every child, showing a complete picture of his development. The results should be reported to students and parents, in a way that conveys intelligible information. As suggested by the Rajasthan Board, the school marks may not be combined with the marks of external examinations, but a separate certificate might be given by the school which would report the results of internal assessment and would be attached to the certificate awarded by the Board.

A168 HILL W H: Why reform examinations? Educational India 1964, 31(1), 3-7.

The education boards should try to reduce the elements of chance in examinations. There should be no option in a question paper. If this is unavoidable, questions which are given as alternative should refer to the same topic and should be of the same difficulty value. The coverage of content of the syllabi can be increased by including more short-answer and objective questions. In the same amount of time required to answer six essay-type questions, the student can answer 30 short-answer questions or about 150 objective questions. Increasing the precision with which questions are stated also facilitates a more objective appraisal of the answers. Short answers can be judged more objectively than long essays. No subjectivity is involved in marking objective-type questions.

A169 INDIA. CENTRAL ADVISORY BOARD OF EDUCATION: Recommendations on examination. (In India. Ministry of Education. Reconstruction of secondary education. Delhi, Manager of Publications, 1967. 57-63; Failures in examination. In its Proceedings of the thirteeth meeting. Delhi, Manager of Publications, 1964. 360).

Some of the recommendations made by the Central Advisory Board of Education in its different meetings are: 1952: the medium of examination at all stages should be same as the approved medium of instruction. 1961: the Board emphasized the need of reform in the examination system for both internal and external assessment. 1963: the Board discussed the problem of large-scale failures in examinations and made the following recommendations: 1) improving the teaching and learning processes, creating and making better utilization of school programmes and amenities; 2) introducing as early as possible the various measures for reforming the examination system recommended by the Ministry of Education; 3) reorganizing the school examination system on the following lines to reduce wastage without lowering standards: The present system of classifying passes in three divisions should be replaced by a new classification comprising first and second divisions and a pass division thus abolishing the third division. Introducing the various measures of reforms and the new classification would reduce the percentage of failures from 50% to about 20%. While the students passing in first and second divisions would join universities the rest should be provided opportunities for technical and vocational courses leading to middle-level employment in industry, commerce and social organization.

A170 INDIA. COMMITTEE OF MEMBERS OF PARLIAMENT ON EDUCATION, 1967: Examination reform. (In its Report ... National policy on education. New Delhi, Ministry of Education, 1967, 14-15).

The following recommendations have been made: 1) attention should be concentrated on three major areas: reduction of the dominance of external examination, making examinations more valid, and adoption of a good system of internal evaluation; 2) two public examinations, one at the end of Class X and the other at the end of class XII, should be conducted by State Boards of School Education; 3) examination certificate should indicate only the performance of student in different subjects rather than declare him to have passed or failed in the examination as a whole; 4) a candidate should be allowed to reapper in the examination, either in part or as a whole, in order to improve his performance; 5) national standard should be decided by a National Board of School Education to be set up by the Government of India; 6) latest methods and techniques of evaluation should be introduced in public examinations at all levels; 7) a comprehensive system of internal assessment covering all aspects of a students' growth should be introduced and the results should be indicated separately in the certificate; 8) to prevent over-assessment, correlation between internal and external assessment should be periodically reviewed.

A171 INDIA. CONFERENCE OF THE CHAIRMEN AND SECRETARIES OF THE BOARDS OF SECONDARY EDUCATION: [Recommendations on examination]. (In National Council of Educational Research and Training. Recommendations on secondary education. New Delhi, the Council, 1966. 23-46).

Some recommendations made in the conferencesheld in different years are: 1958: production of a large pool of test material for the use of State Boards of Secondary Education; 1959: 1) holding two types of secondary examinations - one terminal in nature and the other for candidates who would take up higher studies;

2) revising the syllabus in English to improve the language competence of pupils, in order to reduce failures; 3) taking remedial steps to reduce the number of failures in mathematics; 4) automatic scrutiny of answer scripts of candidates who fail by not more than 5 marks; 5) maintaining the pass level at 33% in all subjects; 6) acceptance of the principle of supplementary examination for failed candidates; 7) introducing rationality in awarding grace marks; 8) publication of the results of private and regular candidates separately; 9) incorporating the new concept of evaluation in the teacher education curriculum; 11) introduction of internal assessment in the final examination. 1961: 1) orientation of teachers to evaluation techniques; 2) publication of results by merely announcing the performance of pupils; 3) modifying the curriculum for successful implementation of objective-based evaluation; 4) indicating results of internal and external assessments separately in percentages; 5) improving physical facilities in school. 1963: 1) training teacher educators and evaluation officers in the concept of evaluation and techniques of test construction; 2) setting separate papers for objective-type and essay-type tests; 3) taking the following steps for improving question papers: (a) comprehensive coverage of the syllabus; (b) balancing question papers in terms of instructional objectives, content coverage, form of questions, and time allocation; (c) gradual introduction of short-answer type questions; 4) conducting studies for improving question papers; 5) introducing two levels of examinations and two types of subjects (core and elective). Students desirous of terminating their education should clear only core subjects. The examination should be in four parts: (a) languages; (b) core subjects; (c) electives; and (d) English. Students may clear one or more parts at a time; 7) declaring the results in the following manner: (a) candidates passing all the subjects should be awarded divisions and credits; (b) for other candidates, the mark sheet should indicate the marks obtained in the subjects passed.

A172 INDIA. CONFERENCE OF THE CHAIRMEN AND SECRETARIES OF THE BOARDS OF SECONDARY EDUCATION, 7TH, MYSORE, 1965: Reforms in examination. Maharashtra Educational Journal 1966, 14(11), 282-4.

The annual reports of all the 13 State Evaluation Units were presented and the minimum essential programme of examination reform for implementation by all the Boards of Secondary Education was discussed. The major recommendations are: 1) improving questions and question papers and procedures of scoring, analyzing and declaring results;2) training student teachers in the concepts and techniques of educational evaluation, improving evaluation procedures in teacher education colleges, modifying instructional and practice teaching programmes in the light of the new concept of evaluation, and undertaking in-service teacher education programmes in evaluation; 3) preparing a brochure by the Central Examination Unit on the development and use of a pool of test materials; 4) orienting district supervisory staff to the concepts and techniques of evaluation and also to objective-centered teaching and learning procedures.

INDIA. EDUCATION COMMISSION: Examination reform. (In Report of the Education Commission (1964-66) - education and national development. Delhi, Manager of Publications, 1966. 290-1, 648).

[See abstract no.399, Indian Educational Material V.1, No.1]

A173 INDIA. EDUCATION COMMISSION: New programme of evaluation. (In Report of the Education Commission (1964-66) - education and national development. Delhi, Manager of Publications, 1966. 234-8, 640-1).

The new approach to evaluation is aimed at making the written examination a valid and reliable measure of educational achievement and devising techniques for measuring the important aspects of the student's growth not assessed by written examinations. Evaluation at the lower primary stage should help pupils to improve their achievement in the basic skills and development of right habits and attitudes. Classes I to IV should be an integrated unit to enable children to advance at their own pace. At the higher primary stage in addition to written examinations oral and diagnostic tests, simple cumulative record cards should be introduced in a phased manner. A compulsory external examination is not necessary at the end of the primary stage. State Evaluation Organizations should prepare tests for the periodical assessment of the level of achievement of primary schools. A common external examination may be conducted by the district educational authority at the end of the primary stage to assess the inter-school comparability of levels of performances. Certificates issued by the school at the end of the primary course should include information from the cumulative record card and the result of the common examination, if any. The standard of external examination should be improved by raising the technical competence of paper setters and adopting scientific scoring procedures. The certificates issued by the State Boards of school education on the basis of the external examination should give only the candidate's performances in different subjects without stating whether he has passed or failed in the whole examination. Candidates should be allowed to reappear in the examination for improving his performance. The schools should also issue a certificate on the basis of internal assessment. A few experimental schools should be given the autonomy to hold final examinations, equivalent to the external examination, frame curricula, prescribe textbooks and conduct educational activities without external restrictions.

A174 INDIA. SECONDARY EDUCATION COMMISSION (1952-53): New approach to examination and evaluation. (In its report. New Delhi, Ministry of Education, 1965. 117-25).

The unnatural emphasis placed on examinations exercised a strangulating influence over the entire field of education, thus practically nullifying its purposes. Examinations dictate the curriculum instead of following it, prevent any experimentation, and hamper proper treatment of subjects and methods of teaching. The following recommendations have been made to improve the existing system of examination: 1) reducing the number of external examinations; 2) minimizing the element of subjectivity in essay-type tests by introducing objective tests and also by changing the type of questions; 3) maintenance of a system of school records indicating the all-round progress of students; 4) giving due weightage to external tests and school records in the final assessment; 5) adopting a system of symbolic rather than numerical marking for evaluating and grading the work of the pupil in external and internal examinations and in maintaining school records; 6) holding only one public examination at the end of the secondary school courses; 7) indicating in the certificate, besides the result of the public examination, the results of school tests in subjects not covered in the public examination and the gist of the school records (a specimen copy given in Appendix VIII); 8) introducing a system of compartmental examinations at the final public examination; 9) allowing candidates to appear in any additional subject at a subsequent examination.

A175 INDIA. UNIVERSITY EDUCATION COMMISSION (1948-49): Examinations. (In its Report, Vol 1. Delhi, Manager of publications, 1962. 327-42). /Chairman: S. Radhakrishnan/:

Recommendations regarding objective examinations are: 1) each university should have a Board of Examiners for advising the university or college instructional staff concerning techniques in devising and constructing objective tests for classroom examinations and inspecting affiliated colleges by use of progress tests; 2) a battery of psychological and achievement tests should be developed for the final test at the end of 12 years of schooling. Along with other relevant information, this will serve as admission examination to the first degree course; 3) a set of objective progress tests for guidance and for evaluating classroom progress should be developed.

Recommendations for improving the existing examination system: 1) pending the development of objective tests, the following steps should be taken; 2) a university degree should not be required for government administrative services; this would remove one of the main evils of the educational system; 3) one-third of the marks allotted to each subject should be reserved for sessional work. A method of uniform marking for this system should be evolved; 4) instead of holding one examination at the end of the three-year course, self-contained sections of the course should be made the subject of periodical examinations spread over the period; 5) an examiner must have five years' teaching experience; 6) standards for success at the examination should as far as possible be uniform in the various universities; 8) the system of awarding grace marks should be abolished for the degree and all higher examinations; 9) viva-voce examinations should be employed only for postgraduate and professional degrees.

A176 INDIA. UNIVERSITY GRANTS COMMISSION: Evaluation in higher education - a report of the Seminars on Examination Reform organized by the University Grants Commission under the leadership of Dr. Benjamin S. Bloom. New Delhi, the Commission, 1961. ii, 272p.

The report of 4 Seminars held in 1958 at the Universities of Osmania, Poona, Patna and Aligarh contains the following: 1) three reports by Dr. Bloom - (a) some observations on examinations in India; (b) programme of action on examination reform; (c) summary report of the four seminars; 2) inaugural and welcome addresses; 3) illustrations of objectives of teaching and evaluation techniques to assess the achievement of the objectives (p.57-259) in respect of the 8 subjects covered by the Seminars, viz., economics, political science, psychology, history, chemistry, physics, botany, and mathematics. Dr. Bloom pointed out that the most appalling phenomenon was the high rate of failures in university examinations. The causes identified are: 1) admission procedures; 2) types of learning experiences provided; and 3) type of examinations used to determine success and failure. He made the following suggestions on the basis of the discussions in the Seminars: 1) basic shift in the present role of examinations; 2) giving 20% weightage (to be eventually increased to 50%) to internal assessment; 3) revision of the syllabi specifying the competence to be developed by students; 4) development of evaluation materials for internal and external assessment; 5) development of learning experiences and learning material for the use of teachers; 5) integrating teaching, learning and evaluation to help the student to achieve his full personaliy. The evaluation procedure should have a sequential and cumulative effect. A ten-year programme of examination reform has been suggested.

A177 INDIA. UNIVERSITY GRANTS COMMISSION: Examination reform. (In its Report on standards of university education. New Delhi, the Commission, 1965. 76-82, 118-19).

Since the present examination system in Indian universities lacks sufficient reliability and validity the following suggestions have been made for its improvement: 1) reform should be aimed at removing the sources of error in the present system rather than to replace it by any other method which may prove to be equally unsatisfactory; 2) there should be a combination of different methods of evaluation as well as the objective and written types of examination; 3) in order to make internal assessment more reliable, internal marks should be scaled to the same mean and standard deviation for each college. Other suggestions are to award separate record of internal tests along with the university diploma and to use objective tests for internal assessment; 4) instead of holding a final comprehensive examination a number of examinations should be conducted; 5) question papers should be related to the educational objectives and the direction and scope of the desired answers should be defined. A tentative outline of answers should be prepared by the paper-setters to ensure uniformity in evaluation; 6) marks in different subjects should be scaled to a common mean and standard deviation before they are combined; 7) results should also be moderated with reference to approved statistical procedures; 8) mechanical aids should be used for tabulating and analyzing marks, to reduce the time consumed by examinations; 9) the number of answer books to be examined by one examiner during a year should be specified.

A178 INDIA. UNIVERSITY GRANTS COMMISSION. EXAMINATION COMMITTEE (1957): Report on examination reform. New Delhi, the Commission, 1962 115p. /Chairman: S.R. Dongerkery/.

Some of the important recommendations are: 1) only those candidates should be admitted to colleges who are likely to profit by higher education; 2) admissions should be made either on the basis of the cumulative record of the performance at school, or by assessing the linguistic ability, intellectual maturity and general interest through some additional papers in the secondary school leaving examinations; 3) it is necessary to restate the educational objectives underlying examinations and draw up a syllabus related to such objectives; 4) methods of teaching should be improved by introducing tutorials and seminars; 5) a system of internal assessment based on the record of class work should be introduced; 6) proper marking of examination scripts should be ensured; 7) in addition to essay-type questions, multiple-choice test, short-answer tests, open-book tests, and viva-voce should be introduced; 8) students should be ranked grade-wise rather than mark-wise; 9) examinations should not be concentrated at the end of the final year, but uniformly spaced over the duration of the course.

A179 INDIA. UNIVERSITY GRANTS COMMISSION. MATHEMATICS REFORMS COMMITTEE. Examinations. (In its Report. New Delhi, the Commission, 1966. 9-11).

In addition to holding periodical tests, teachers should meet students at regular intervals for making internal assessment. Eventually 50% marks may be allocated for such assessment; 2) there should be a system of annual examination throughout the undergraduate and postgraduate stages, and question papers should be set by internal and external examiners jointly; 3) the quantitative approach in the assessment of students' capacity or intelligence should be discarded, since examination marks do not necessarily indicate actual ability or knowledge of students. The following recommendations have been made specifically for mathematics: 1) no paper setter should set questions for more than two consecutive years; 2) problems for solution should not be taken from question papers of previous years or from standard textbooks; 3) the number of questions to be set should not exceed the number of problems to be solved by 25% in the examinations for the first 2 years at college and 50% at the graduate and postgraduate examinations; 4) paper setters should be given atleast six months' time to set the papers and prepare the answers; 5) theoretical aspects should not carry more than 40% marks up to the first degree.

A180 INDIA. UNIVERSITY GRANTS COMMISSION. REVIEW COMMITTEE ON GEOGRAPHY: Improvement in examination system in geography (In its Report-Geography in Indian Universities. New Delhi, the Commission, 1968. 86-8, 99).

The Committee considered the advantages and disadvantages of the current university examination system. Though the question of examination reform is related to the greater issue of university statutes and regulations, the Committee recommended that the examination in geography at postgraduate level should have four components, viz., (a) written examination in geography at postgraduate level should have four components, viz., (a) written examination, (b) practicals in laboratories and in the field, (c) dissertation in lieu of a special paper, and (d) viva-voce along with practical examinations. The respective marks to be assigned for these parts have been suggested in the model syllabus. The existing system of inviting an external examiner to assess, jointly with the internal examiner, the performance of students in the theoretical and practical papers, should continue. As long as suitable instructional materials are not available in Hindi and other Indian languages, the postgraduate teaching and examination should be conducted through the medium of English.

A181 INDIA WHEAT LOAN EDUCATIONAL EXCHANGE PROGRAMME: [Extracts from recommendations]. (In Vice-chancellors' Conference, Khadakvasla, Maharashtra 1960. Proceedings. New Delhi, Ministry of Education, 1961. 113).

Three American evaluation consultants visited India in 1959 at the invitation of the Government of India to study the examination systems in India. Nine universities (Aligarh, Delhi, Gujarat, Karnataka, Kerala, Osmania, Patna, Poona and Utkal) participated in the project. The major recommendations are: 1) formulating a specific and realistic set of teaching objectives in terms of desired changes in student behaviour. Such objectives must take into account future national conditions, diverse role of well-educated graduates and also the aptitudes, abilities and individual goals of those student-groups as may be selected for education in the divergent institutions and programmes; 2) indicating effectively these objectives to all those involved in the teaching-learning process; 3) translating the objectives into suitable outlines of required learning experiences at various levels in each subject-field; 4) deciding upon the most appropriate kinds of evaluation instruments in the light of the curricula arrangements of learning experiences; 5) using a variety of evaluation devices for assessing the student's attainment of all significant objectives. Essay-type test is likely to be inappropriate for external examination; 6) improving practical tests of a formal or informal nature by employing sound testing technqiues; 7) employing teacher observations of student performance for a formal assessment. However, there must be careful prior definition of the aspects of students' behaviour to be observed; 8) using oral examinations for informal testing of individuals. This may not be generally suitable for formal testing of large groups.

A182 JAIN S L: Evaluation and its devices. Naya Shikshak 1961, 4(4), 16-20.

The suggestions are: 1) essay examinations should be supplemented by other simple tools of evaluation and school records of students; 2) essay questions should be used to test higher mental abilities like comparison, interpretation and criticism; 3) the questions should cover all aspects of a particular subject so that students are discouraged to skip some topics; 4) all questions should be compulsory; 5) the desired length of answers should be indicated; 6) only the areas of a specific subject taught in the classes should be tested; 7) essay-type examinations should not be used as far as possible in lower classes; 8) each question should be rated on a scale of 10 or 20.

A183 KAMATH A R: Internal and external assessments - a study based on the pre-degree examination 1962 of the University of Poona. (In his Two studies in education. Bombay, Asia Publishing House, for Gokhale Institute of Politics and Economics, 1968. 1-75).

The study based on the results of a sample of 1200 students of arts and 1200 students of science courses makes a detailed analysis and comparison of the two assessments and examines the effects of the scheme of internal assessment on the results of the pre-degree examination. Some of the findings are: 1) a general improvement in the results was noticed after the introduction of internal assessment; 2) the internal assessment appeared to be higher than the external assessment (or examination marks) in most of the subjects in the pre-degree Arts. The difference was the least in urban colleges; 3) internal scores in Arts had greater dispersion than examination marks; 4) the dispersion of internal assessment in science subjects was not always greater than the dispersion of examination marks; 5) correlation coefficients between the internal scores and the examination marks gave definite evidence of association between them. But they were not so high as to be of much predictive value; 6) the correlation coefficients between internal and external assessments in science subjects were higher than those for Arts subjects suggesting a better predictive value for the internal assessment in science subjects.

A184 KAMAT V V: Improvement of examinations. Journal of Education and Psychology 1960, 18(1), 251-7.

The following suggestions have been made: 1) the number of external examinations should be reduced as far as possible; 2) progress in internal work should be measured by objective tests at the end of each term; 3) external examinations should include short-answer questions or a combination of short-answer and essay-type questions; 4) a comprehensive internal record of each pupil containing details of progress in studies and behaviour should be maintianed by each school and incorporated in the certificates issued to students; 5) 20% of the marks at each external examination should be allocated to internal work based on school records; 6) maximum time allowed for answering an essay-type question paper should be 2½ hours. Question papers should also include about 20 compulsory short-anwswer questions.

A185 **KHANZODE H N**: Improvement in secondary education. Maharashtra Educational Journal 1965, 14(2), 33-5.

The following suggestions have been made in respect of the Secondary School Certificate Examination conducted by the Vidarbha Board of Secondary Education, Nagpur to improve the standard of the secondary education: 1) allotting 20% marks in each subject for internal assessment should be stopped. If this is not possible,it should be reduced to 10%; 2) marks allotted for practical examination in science subjects should also be reduced, since most of the rural schools lack the necessary equipment to conduct practical tests; 3) most of the secondary schools in cities should be upgraded to the higher secondary level (11th class). The rural schools should be permitted to teach up to the secondary/higher secondary level without science; 4) the Board should conduct two examinations - secondary (10th class) and higher secondary (11th class). Only students successful in the higher secondary examination should be admitted to colleges.

A186 **MATHUR S S**: Reforms in public examination. Teaching 1965, 38(2), 49-57.

Suggests setting up a board of evaluation by each examining body with the following responsibilities: 1) planning, evaluation and examination schemes; 2) undertaking curriculum planning; 3)ensuring uniformity of standards and flexibility in deciding the courses of study according to the needs of the particular area. A separate board of examines should also be appointed for setting question papers and examining answer papers. If the present essay-type tests are to continue as an instrument of measuring students' achievement, some improvements should be made in the construction and scoring system. The question papers should aim at testing comprehension, linguistic abilities, and style rather than testing the pupil's capacity to memorize information. The answer papers should be examined by a team of examiners.

A187 **MATHUR V S**: Practical approach to examination reform. Teaching 1967, 40(2), 45-8.

The suggestions are: 1) conducting surprise monthly classroom tests to measure the gradual progress of pupils. It should be allotted 20 to 25% marks in the public examination; 2)giving some weightage to extramural work such as physical education, debates, general reading, hobbies,and behaviour; 3) announcing the examination dates in advance, and the order of the individual papers only 24 hours before the examination;

4) selecting topics at random for setting questions;5) providing reference books for consultation in the examination hall; 6) prescribing practical work as part of the examination in subjects like geography; 7) framing the questions in such a manner as to stimulate the originality of the pupil; 8) allowing a certain percentage of marks for oral tests; 9) abolishing supervision in examinations and instructing the examinees to sign a declaration on each answer book to the effect that they would be honest; 10) marking the answer books in accordance wih a standard schedule and awarding due credit for cleanliness, good handwriting, presentation, and originality.

A188 MISRA R G: Inclusion of internal assessment in the results of public examination. Teacher Education 1963, 8(1), 18-24.

The pre-requisites for meaningful internal assessment are: 1) understanding the basic philosophy of education and the objectives of education; 2) readiness of teachers to realize these objectives; 3) creation of suitable climate for introducing the system; 4) providing training to teachers in the techniques of assessment; 5) providing adequate facilities in schools for internal assessment; 6) development of suitable assessment tools. Merely combining the marks of internal assessment with public examination marks will not contribute to educational improvement, since the two systems are based on two basically different educational philosophies. Till the techniques of internal assessment are improved and the role of internal assessment is recognized, efforts should be made to improve public examinations. However, gradual introduction of internal assessment system should be made in selected schools, where facilities and cooperation of teachers are assured.

A189 MITHILESH KANTI: Examination reform and teachers. Teacher Speaks 1967, 4, 112-21.

Ignorance, inertia, lack of encouragement and recognition, opposition from colleagues, fear of criticism, and opposition from examinees prevent teachers from undertaking any reform work. Teachers can contribute in the following ways: 1) reading examination and evaluation literature; 2) analyzing question papers; 3) improving question papers; 4) improving the method of scoring answer books. A partial analysis of six years' question papers (Hindi) of the higher secondary examination of the Bihar School Examination Board revealed the following defects: 1) questions were set from outside the course; 2) too many choices from non-comparable areas; 3) faulty construction of questions; 4) several areas were left out; 5) marks were reserved for good handwriting; 6) self-expression in question papers.

A190 MUMTAZUDDIN: Factors connected with examination reform. Bulletin of the West Bengal Headmasters' Association 1960, 9(1), 25-32.

The suggestions are: 1) considering the number of students taking examinations, there should be more than one Board of Secondary Education in each state for conducting examination. However, a co-ordinating body should function to ensure uniformity of standards and efficiency; 2) assistance of teachers is indispensable for setting papers and evaluating answers; 3) tests should assess behaviour pattern of pupils rather than elicit certain unassimilated items of information from them; 4) incorporation of objective tests in essay-type tests should be avoided since this may create difficulties in evaluation; 5) adequate weightage should be given to evaluation techniques and methods of internal assessment in the teacher education curriculum; 6) categorizing of pupils according to marks obtained in examination is of no use, unless the certificate is accompanied by records indicating the type of schooling of the pupil, his extraordinary abilities and character-traits, and recommendations regarding his future education or employment.

A191 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. DIRECTORATE OF EXTENSION PROGRAMMES FOR SECONDARY EDUCATION: Concept of evaluation in education. New Delhi, the Council, 1963. 24p. 26 ref.

The following points have been discussed: 1) objectives of education - formulation of objectives in terms of change in the pupil and specifying the area in which the change is desired; 2) defining an objective in terms of pupil's behaviour; 3) selecting learning experiences likely to lead to the attainment of any given educational objectives; 4) evaluation as a process of determining the extent to which an objective is being attained, the effectiveness of the learning experiences provided in the classroom, and how well the goals of education have been accomplished; 5) selection of evaluation devices which can secure valid evidence of the desired change of behaviour; 6) seven steps involved in evaluation: (a) selection of the educational objectives to be evaluated; (b) defining the objective in terms of pupil's behaviour implied in the objective; (c) identifying situation which will provide evidence on the attainment or non-attainment of the behaviour relating to any objective; (d) selecting tests or other devices that will directly or indirectly give evidence on the selected behaviours; (e) construction of evaluation devices; (f) applying the devices and recording the evidence; (g) interpretation of the evidence recorded; 8) usefulness of evaluation in improving instruction; and 9) role of teachers in examination reform.

A192 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. DIRECTORATE OF EXTENSION PROGRAMME FOR SECONDARY EDUCATION: Evaluation in general science. New Delhi, the Council, 1963. 64p. 16 ref.

A method of evaluation has been suggested which is aimed at solving problems in examination, and improving teaching techniques and learning procedures. The approach is based on the fact that the educational process consists of purposeful action which brings about in the pupil desirable changes when appropriate learning experiences are provided. It further envisages a continuous appraisal of the purposes as well as the procedures of teaching and learning to make education dynamic and self-developing. Chapter II describes the objectives of teaching general science and methods of formulation of objectives. Chapter III describes two methods (contrast and identification) of developing learning experiences. Chapter IV deals with development of testing material. Chapter V describes the planning for a full test. Some suggestions for the implementation of the programme (Chapter VI) are: 1) preparation of a two-dimensional chart with a list of objectives and units of course-content; 2) developing a unit-wise plan of teaching; 3) evaluating pupils' achievement immediately after completing the unit; 4) using the result for effecting modification in teaching; 5) holding comprehensive examinations twice or thrice a year to assess the over-all development of pupils. Wherever relevant, examples have been given to clarify the points.

A193 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. DIRECTORATE OF EXTENSION PROGRAMME FOR SECONDARY EDUCATION: Evaluation in social studies. New Delhi, the Council, 1963. 43p. 30 ref.

The brochure is primarily designed to help social studies teachers to apply the evaluation approach in teaching and testing. Chapter II discusses the concept of social studies which could be described as a field of subjects drawing appropriate content element from different subjects like history, geography etc. The broad steps involved in the evaluation approach have been described in Chapter III. Keeping these steps in view the objectives of teaching social studies have been formulated in Chapter IV. Chapter V discusses the planning of learning experiences. Chapter VI describes 6 steps involved in the construction of evaluation tools.

Chapter VII describes the scoring procedure for assessing the pupil's performance. Chapter VIII describes the procedure for summarizing test results. The Appendix gives specimens of evaluation test items on social studies.

A194 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. DIRECTORATE OF EXTENSION PROGRAMME FOR SECONDARY EDUCATION: Progress of examination reform in India. New Delhi, the Council, 1962. 30p.

Chapter I of the review furnishes the background of examination reform. Chapter II describes the plan for examination reform drawn up by the All India Council for Secondary Education with the expert advice of Dr. B.S. Bloom of the University of Chicago. Dr. Bloom ruled out the possibility of eliminating examinations altogether, and suggested a phased programme of 10 years which included: 1) setting of significant and realistic purposes and goals of learning; 2) in-service training of teaching personnel; and 3) development of internal and external evaluation procedures. The programme in action and the tasks accomplished include the following: 1) establishment of a contral examination unit; 2) training of evaluation personnel; 3) orientation of teachers to new methods of evaluation; 4) development of test pools; 5) involvement of teacher education colleges in the evaluation programme; 6) co-operation of State Boards of Education (discussed in Chapters III & IV);7) research studies on problems of evaluation. The future programme (discussed in Chapter V and summarized in Chapter VI) includes: 1) introduction of objective tests in the external examination; 2) establishment of State Evaluation Units; 3) introduction of internal assessment as a part of the total assessment of pupils; 4) developing learning experience; 5) modification of the curriculum in order to serve new objectives of teaching and learning; 6) setting up a National Committee of Educational Objectives; 7) conducting research studies on evaluation problems (a list has been given); 8) setting up a psychometric and statistical unit.

A195 NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. DIRECTORATE OF EXTENSION PROGRAMME FOR SECONDARY EDUCATION: Studies in internal assessment procedures and promotion policies of some selected schools of India. New Delhi, the Council, 1963. 99p.

The study covering 12 private and government sponsored schools revealed the following: 1) a wide variation both in type and number of assessments was noticed. Some schools had abolished the terminal examinations and the results of periodical assessments are considered for promotion to next class; 2) there is a tendency to equalize as far as possible the time span between the different assessments; 3) the year's weightage is normally distributed between the different periodical assessments; 4) a complete absence of interest, attitude and intelligence testing was generally noticed. However, in the field of achievement, knowledge, application, and skills are the most commonly tested items; 5) standardized tests are not used. Three types of teacher-made tests, viz., essay, short-answer and objective types are commonly used; 6) most of the schools present pupils' scores just as raw numerical scores, whereas some schools give symbolic scores and convert them into numerical scores. Only a few schools represent achievement in terms of standard scores; 7) rules of promotion vary, widely, the main points of difference being the items considered for promotion and the weightage given to different assessments.

A196 PADMANABHAN N S: Bottlenecks in education - the examination system. Educational Review 1964, 59(3), 66-7.

The defects of the present examination system have been pointed out and the following remedial measures suggested: 1) the performance and conduct of a student during the whole year should be taken into consideration; 2) oral examination should form part of the examination system. A team of examiners from various schools should be selected for this purpose; 3) questions should be objective so that candidates do not depend on chance; 4) an aptitude test should be conducted to admit students to higher secondary courses; 5) the syllabi should be drafted by heads of institutions in consultation with senior members of the teaching staff.

A197 PANDHARIPANDE P S: Place of internal assessment in education - validity of the teacher's assessment. Progress of Education 1962, 36(5), 187.

The study aimed at examining the validity of the teacher's assessment of pupils revealed the following: 1) positive relationship between teacher's assessment and achievement in tests proves the validity of teacher's assessment, although most teachers do not have sufficient grounding in the technique; 2) the ratings of experienced teachers who have contact at least for one year with the pupils whom they have to assess were found more valid; 3) any experienced and sincere teacher irrespective of his speciality can assess the language ability, and the general mental ability. However, assessment of general intelligence is more difficult than of linguistic skill; 5) the assessment would be more valid if teachers hold prior discussions among themselves.

A198 **RAINA T N:** Relationship between external examination and internal assessment. Teacher Education 1963, 8(1), 25-38.

A study with 476 B.Ed. student teachers of Rajasthan University showed that no highly significant relationship exists between 1) external examination marks and the internal assessment in theory paper, and 2) external examination marks and practice teaching marks. The study further revealed that there are not only different standards of evaluation in different colleges, but within the same college the faculty members have different standards to judge the merit of student teachers. The correlation between external marks and internal assessment varied between .13 and .51 and that between external marks and practice teaching between .22 and .40.

A199 **SALAMATULLAH:** Examination in secondary schools in India. Education and Psychology 1955, 2(1), 37-40.

The general apathy towards the reform of examination system has been attributed to the absence of well-defined aims of education, ignorance of teachers and school administrators about different valid tools of measurement, and the force of conservatism. The following suggestions have been made: 1) giving more emphasis on productive and creative activities than on passive memorization; 2) developing new techniques for appraising group projects and measuring essential skills involved in various activities; 3) evolving a new type of school record; 4) examining the possibility of abolishing public examinations at the end of high school.

A200 **TAYLOR H J:** Examination of examiners. (In his Three studies in examination technique. New Delhi, University Grants Commission, 1964. 1-10).

In order to assess the range of uncertainty in examiners' estimates, answer scripts of the candidates at the pre-university examination of one college (Gauhati University) were marked by two examiners. The marks sheets were subjected to statistical analysis. The findings and conclusions are: 1) examination marks have neither the sanctity nor the precision usually attached to them. Marks should, therefore, be treated as rough estimates and not as exact measures. However, it should be assumed that the standard error of a mark is not less than 7; 2) since different examiners show large variations in mean and standard deviation, marks should be scaled to the same mean and standard deviation before being combined; 3) the best single measure of a candidate's performance is the average score over a large number of papers marked independently and scaled properly. The chief criterion of passing should be attainment of a specified total. The requirement of passing separately in a large number of papers should be abandoned, since it introduces a high probability of failure on account of examiners' errors. The 'true' total mark of a candidate cannot be known exactly, but for any given set of marks, it is possible to compute the probability that this 'true' total is above the pass line. Candidates for whom this probability reaches some specified value should, therefore, be declared to have passed.

A201 TAYLOR H J: Supplementary examinations. (In his Three studies in examination technique. New Delhi, University Grants Commission, 1964. 11-15).

The effect of supplementary examination (an examination held immediately after the publication of the results of the main examination, to which those who failed in the main examination are admitted) on the reliability of examination results has been studied. The main argument in favour of supplementary examination is that many students who fail by a small margin really deserve to pass, and a second opportunity should be given to them. It has been shown that supplementary examination always decreases the reliability of the results since it increases the proportion of bad candidates in the pass list to about 1½ times its original value. A supplementary examination passes as many bad candidates as good ones. By successive examinations the better candidates are rapidly removed and the residuum consists overwhelmingly of bad candidates. It has been suggested that instead of holding supplementary examinations more attention should be given to increase the reliability of the original examination.

A202 TAYLOR H J, TLUANGA L N: Grace marks. (In Taylor H J. Three studies in examination technique. New Delhi, University Grants Commission, 1964. 16-33).

If a candidate is found to have failed by one or two marks in a single subject, but has done well in all other subjects, the difference is made up by adding the required marks (called grace marks). This method of adjusting examination marks is open to objection on the following grounds: 1) it is based on arbitrary rules; 2) adjustment is done in one direction only, i.e. marks are only added not subtracted; 3) the term 'grace mark' suggests that the mark is awarded as an act of compassion. No candidate should pass an examination on compassionate grounds. Using the statistical theory of measurements, the paper presents a method of determining, on the basis of examination marks, which candidate should pass or fail. The basic concept is the'passing probability' which is the probability that the candidate would have satisfied the conditions if the marking had been free from error. A tabular method has been given by which passing probabilities can be easily found in practice.

A203 TRIVEDI R S: Towards examination reform. University News 1966, 4(5), 3-5.

Presents a report of the Summar School of examination reform and the Workshop of paper setters at the preparatory level, organized by the Sardar Vallabhbhai Vidyapeeth. The action plan of the summar school consisted of: 1) determining the desired competence at university level; 2) conducting a critical analysis of question papers; 3) suggesting modifications in question papers; and 4) discussing problems associated with internal and external assessment and mechanics of examination system. The Workshop discussed among others weightage to be given to questions, practice of giving options, and the language of the question papers. The characteristics of a good question paper as outlined in the workshop are: 1) questions should be based on specific objectives; 2) syllabus content should be adequately covered; 3) questions demanding mere reproduction of information should not be out of proportion; 4) the language of questions should be clear, precise, simple, and unambiguous; 5) its length should be such that an average student can complete it within the prescribed time; 6) the length of the expected answers should be indicated in the question paper; 7) options should be limited only to questions of equal difficulty value; 8) it should consist of a few essay questions, a majority of medium-difficulty value and a few difficult and challenging; 9) it should satisfy students psychologically.

A204 VAKIL K S: Examinations. Indian Education 1964, 3(4), 28-30.

The abolition of the existing horizontal system of annual examinations for en masse promotions of pupils from one class to another has been urged, since it is based on the false notion that the pupils in each class are equal in their ability and attainment. This system should be replaced by a vertical system of promotion in which each pupil is promoted to successive higher stages subject-wise (i.e. according to the pupil's attainment in each subject). Further, the present system of external primary and secondary school leaving examination should be replaced by a certificate examination. It may be conducted by a committee consisting of headmasters of schools, and subject teachers under the supervision of the local inspecting staff.

A205 VICE-CHANCELLORS' CONFERENCE, KHADAKVASLA, MAHARASHTRA, JUNE 15-16, 1960. Examination reform. (In its Proceedings. New Delhi, Ministry of Education, 1961. 33-6, 64-5, 109-13, 139-41).

The major recommendations are: 1) recognizing examinations as an important element in the teaching process and accordingly defining the objectives of teaching different subjects in addition to the general objectives of a liberal education; 2) conducting continual investigation of the operation of the existing system of examination particularly with regard to the following: reliability and validity, evaluation techniques, scaling and combining of marks, methods of student selection, question papers, development of tools for objective testing, survey of the available methods of internal assessment; 3) maintenance of a cumulative record showing attendance at lectures, tutorials, discussions and libraries, and performance in periodic tests; 4) giving 20% weightage to such records. The records should be sent to universities at the end of each term, and the cases of wide discrepancies between the results of internal assessment and university examinations should be examined; 5) setting up a special unit to study examination reform in each university which would study the design of examinations, tabulation and scaling of marks, and other features of the examination procedure; 6) coordinating the work done in the field of examination reform by UGC.

A206 WASI M: They say - abolish examinations. Education Quarterly 1958, 10(38), 149-51.

If a well-conducted examination is a good test of instruction for a given project, there is no need to abolish examinations. On the other hand, if examination serves no purpose, but burdens the students' mind and memory with unproductive details, it would be worth considering whether better results could be achieved by school records or by combining examination results with such records.